

Maritime Investment Stakeholders Meet

Gujarat Maritime Board

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Directorate General of Maritime Administration

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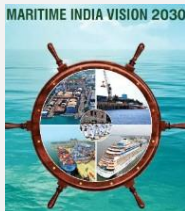
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1.MIV-2030 & MAKV 2047 Vision



India's Maritime Vision - (MIV 2030 & MAKV 2047)

	Maritime India Vision (MIV) 2030 • Position India Globally in the Top 10 Shipbuilding & repair nations (from 30k GT to 500k + GT. • Increase the share of renewable energy at Major Ports to >60% • Promote Waste to Wealth through ship recycling & take India from #2 to #1 in ship recycling. • Grow India's global seafarer share from ~12% to >20% by 2030 • Achieve global-benchmark port efficiency with average vessel turnaround time <20 hours and container dwell time <40 hours at all Major Ports.
	Maritime Amrit Kaal Vision 2047 • Position India among the Top 5 global shipbuilding & repair nations, while sustaining the #1 global ranking in ship recycling. • Transition all Major Ports to carbon-neutral, future-ready ports, anchored in green fuels, electrification, shore power and digital emissions monitoring. • Make India a global hub for green bunkering and alternate fuels, with LNG, hydrogen and ammonia infrastructure across key ports. • Institutionalize green shipping through incentives, including port-duty differentiation and 20-30% financial support for green and retrofitted vessels. • Deliver long-term maritime leadership through 300+ strategic initiatives across 11 focus areas, aligned with global sustainability and trade growth.

India's maritime transformation journey is guided by two interconnected strategic frameworks: Maritime India Vision (MIV) 2030 and Maritime Amrit Kaal Vision (MAKV) 2047. Together, these visions provide a comprehensive roadmap for positioning India as a leading global maritime nation by enhancing port infrastructure, shipping, shipbuilding, maritime manpower, sustainability, and technology-driven governance. MIV 2030 serves as the medium-term blueprint with over 150 initiatives aimed at accelerating growth, improving efficiency, and strengthening India's maritime competitiveness, while MAKV 2047 builds upon this foundation through more than 300 strategic initiatives across 11 focus areas aligned with the national aspiration of *Viksit Bharat 2047*.

1.1. Maritime India Vision (MIV) 2030

MIV 2030 seeks to transform India into a globally competitive maritime power by improving operational efficiency, increasing domestic manufacturing capability, and promoting sustainable growth. A key objective is to position India among the top 10 shipbuilding and ship repair nations, increasing annual production capacity from approximately 30,000 GT to over 500,000 GT. The vision also aims to strengthen India's leadership in ship recycling by enabling the country to move from the world's second-largest ship recycling destination to the leading position globally.

The vision emphasizes development of a future-ready maritime workforce. India currently contributes approximately 12% of the global seafaring workforce, and MIV 2030 targets increasing this share to more than 20% by 2030, supported by expanded maritime

training capacity, enhanced employability, digital certification, welfare initiatives, and greater participation of women seafarers

Sustainability is another key pillar of MIV 2030. The vision aims to increase the share of renewable energy at major ports to over 60%, promote circular economy principles through environmentally compliant ship recycling, and achieve globally benchmarked operational efficiency, including average vessel turnaround times below 20 hours and container dwell times below 40 hours. These initiatives contribute directly to reducing logistics costs and improving India's competitiveness in global trade.

1.2. Maritime Amrit Kaal Vision (MAKV) 2047

Building on MIV 2030, MAKV 2047 represents India's long-term maritime strategy for achieving global leadership by the centenary of independence. The vision aims to position India among the top five shipbuilding and repair nations globally, while maintaining the country's leadership in ship recycling. It seeks to create a resilient maritime ecosystem that supports economic growth, energy security, supply chain resilience, and the Blue Economy.

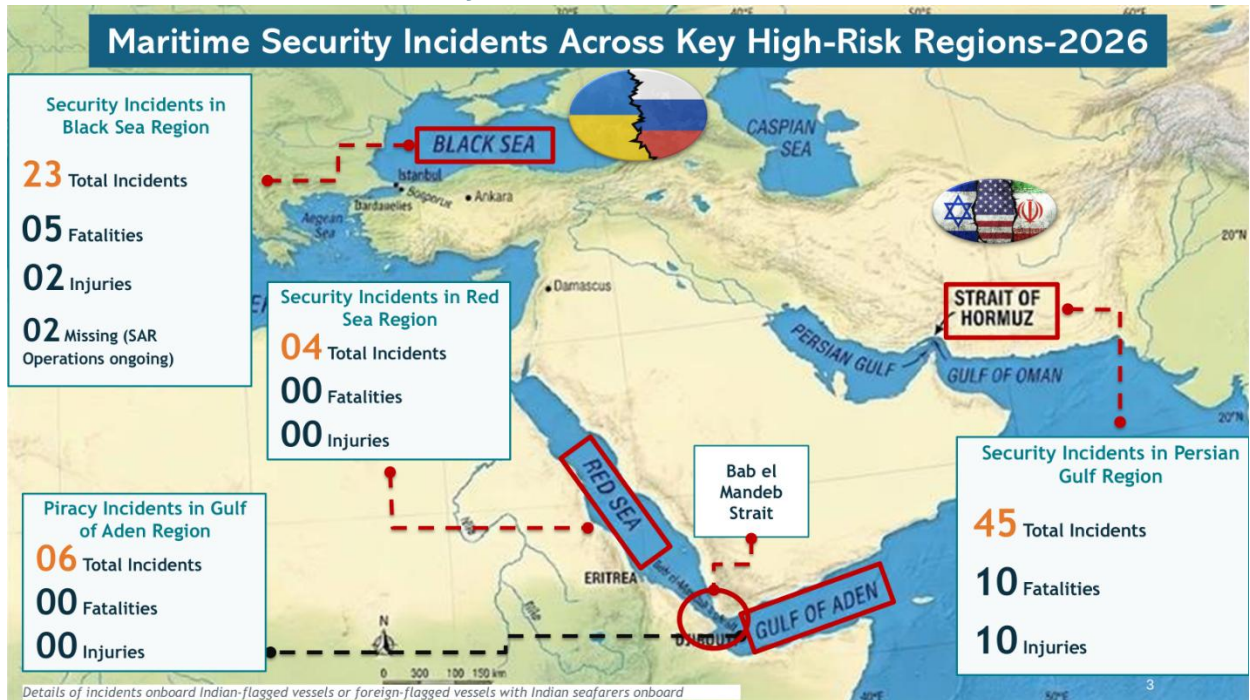
A defining feature of MAKV 2047 is its strong emphasis on sustainability and decarbonization. The vision envisages all major ports becoming carbon-neutral, future-ready ports, supported by renewable power, shore electricity, green fuels, digital emissions monitoring, and low-carbon maritime infrastructure. India is also expected to emerge as a global hub for green bunkering and alternate fuels, including LNG, hydrogen, ammonia, methanol and other next-generation fuels. Financial incentives and targeted support for green and retrofitted vessels will accelerate the transition toward environmentally sustainable shipping.

The MAKV 2047 framework encompasses 11 strategic themes, including green shipping, shipbuilding and repair, maritime clusters, coastal shipping, inland waterways, education and research, maritime professional services, technology and innovation, global maritime presence, next-generation ports, and enhancement of Indian tonnage. Through these initiatives, India seeks to establish itself as a globally respected maritime hub characterized by innovation, sustainability, efficiency, and strategic leadership.

Together, MIV 2030 and MAKV 2047 provide a phased roadmap for transforming India's maritime sector into a globally competitive, technologically advanced, environmentally sustainable, and growth-oriented ecosystem that supports national development, trade expansion, employment generation, and the vision of Viksit Bharat 2047

2. Present Geopolitical Situation

2.1. Maritime Security Environment and the Strait of Hormuz Crisis



Introduction

The global maritime domain witnessed a significant deterioration in security conditions during 2026, driven by escalating geopolitical tensions, regional conflicts, sanctions enforcement actions, and increasing threats to commercial shipping. The convergence of military activity in the Middle East, disruptions to energy supply chains, attacks on merchant vessels, and heightened naval deployments transformed several key maritime corridors into areas of elevated operational risk.

For India, a nation whose economic growth, energy security and international trade are deeply dependent on maritime connectivity, these developments assumed particular significance. More than 95% of India's trade by volume and approximately 70% by value is carried through maritime transport. Furthermore, India's dependence on imported crude oil, LPG, fertilizers and other critical commodities makes the uninterrupted functioning of international shipping routes essential to national economic stability.

Against this backdrop, the Strait of Hormuz crisis emerged as one of the most consequential geopolitical developments impacting global maritime trade during 2026. However, the crisis cannot be viewed in isolation. It formed part of a broader deterioration in maritime security across several interconnected regions, including the Persian Gulf, Gulf of Aden, Red Sea and Black Sea. Together, these developments created a complex risk environment affecting shipping routes, commodity flows, insurance markets and global supply chains.

Emerging Maritime Security Risks Across Key Global Chokepoints

The maritime security landscape during 2026 was characterised by a rise in reported incidents across multiple strategic waterways. The Persian Gulf emerged as the most affected region, recording 45 security incidents, along with 10 fatalities and 10 injuries. The concentration of incidents in this region is particularly significant because of its role as the principal maritime gateway for crude oil and energy exports originating from the Middle East. The available incident reporting also includes details relating to incidents onboard Indian-flagged vessels, as well as foreign-flagged vessels carrying Indian seafarers, thereby underscoring the direct relevance of these developments for Indian maritime interests.

The Red Sea, while witnessing fewer incidents in absolute terms, continued to remain an area of concern due to its strategic location along one of the world's busiest maritime corridors. A total of 04 security incidents were reported in the region during 2026, with no fatalities or injuries recorded. Despite the absence of casualties, instability in the Red Sea continued to increase uncertainty for shipowners, cargo operators and insurers because the corridor connects the Indian Ocean with the Mediterranean Sea through the Suez Canal and serves as a critical route for trade between Asia and Europe.

Similarly, the Gulf of Aden continued to experience piracy-related maritime security incidents. A total of 06 piracy incidents were reported in the region during 2026, with no fatalities or injuries recorded. Although the number of incidents remained contained, the region continues to represent a persistent security concern because of its proximity to major international shipping lanes linking the Arabian Sea, Red Sea and wider Indian Ocean region.

The Black Sea represented another significant source of maritime risk. During 2026, 23 security incidents were reported in the Black Sea region, resulting in 05 fatalities, 02 injuries and 02 missing persons, with search and rescue operations continuing. These incidents reflected the continuing impact of the Russia-Ukraine conflict on shipping activities, maritime infrastructure and vessel operations in the region. Security disruptions in the Black Sea also carried wider implications for global commodity markets, particularly crude oil, fertilizers and grain exports originating from the region.

Taken together, the incident data indicates that maritime security challenges during 2026 were distributed across several high-risk regions rather than confined to a single geography. The Persian Gulf accounted for the highest number of reported incidents, followed by the Black Sea, Gulf of Aden and Red Sea. This pattern demonstrates a broader deterioration in the operating environment for commercial shipping, with implications for vessel safety, Indian seafarer welfare, insurance costs, route planning and resilience of global supply chains.

The Strategic Importance of the Strait of Hormuz

Among all maritime chokepoints, the Strait of Hormuz occupies a uniquely critical position within the global energy system. Situated between the Persian Gulf and the Gulf of Oman, the Strait serves as the primary maritime outlet for several of the world's largest oil and gas exporters, including Saudi Arabia, Iraq, Kuwait, Qatar, Bahrain and the United Arab Emirates.

Approximately one-fifth of global crude oil trade and a significant share of global LNG exports transit through this narrow waterway. Consequently, any disruption in the Strait immediately affects global energy markets, shipping costs and supply chain stability.

For India, the significance of the Strait is even greater. Historically, a substantial proportion of India's crude oil imports, LPG supplies and petrochemical feedstocks have originated from producers located within the Gulf region. As a result, developments affecting the security of the Strait have direct implications for India's energy security and economic performance.

The escalation of tensions in the Middle East during 2026 therefore generated significant concern among policymakers, refiners, shipping companies and commodity traders. Market participants feared that prolonged disruptions could constrain supply availability, increase transportation costs and trigger sharp increases in global energy prices.

Impact of Geopolitical Conflict on Maritime Trade

The deterioration in regional security conditions had immediate consequences for commercial shipping operations. Military exchanges, attacks on maritime assets, threats to navigation and growing uncertainty regarding the safety of commercial vessels forced shipping companies to reassess operating practices across the region.

Shipowners increasingly sought to minimise exposure to high-risk areas by altering voyage plans, rerouting vessels and implementing additional security measures. These adjustments, while necessary from a risk management perspective, significantly increased voyage durations, fuel consumption and operating costs.

Insurance providers responded by imposing higher war-risk premiums for vessels operating in affected regions. In several cases, additional security-related charges were introduced to compensate for elevated operational risks. These increased costs were ultimately passed through global supply chains, affecting commodity prices and transportation expenses.

The cumulative impact was a significant increase in the cost of maritime trade, particularly for energy commodities heavily dependent on Gulf shipping routes.

The Maritime Dimension of Energy Security

The Strait of Hormuz crisis highlighted the increasingly interconnected nature of maritime security and energy security. While commodity markets often focus on production and supply availability, the events of 2026 demonstrated that transportation corridors are equally important components of energy resilience.

Even when production capacity remains intact, disruptions to shipping routes can significantly affect market stability. Concerns regarding the safe passage of vessels through the Strait contributed to sharp fluctuations in crude oil prices, increased freight rates and growing uncertainty across energy markets.

For major importing nations such as India, ensuring energy security therefore requires not only access to diverse suppliers but also access to secure and reliable maritime transportation routes. The crisis reinforced the importance of developing procurement strategies that incorporate both supplier diversification and route diversification.

India's Exposure to Maritime Security Risks

India's extensive dependence on seaborne trade creates significant exposure to developments in the international maritime environment. The country's growing economy relies heavily on uninterrupted access to imported energy, raw materials, fertilizers and industrial inputs, much of which is transported through regions affected by geopolitical instability.

The events of 2026 highlighted several structural vulnerabilities. First, a substantial share of India's energy imports continued to originate from regions directly affected by the crisis. Second, the majority of India's strategic cargo transportation remains dependent on foreign-flag shipping, limiting India's ability to directly influence transportation availability during periods of disruption.

At the same time, the crisis also demonstrated the strengths of India's maritime and energy management framework. Through rapid diversification of sourcing, flexible refinery operations, proactive government intervention and the utilisation of alternative maritime corridors, India successfully maintained supply continuity despite elevated geopolitical risks.

2.2. Geopolitical Landscape of Key Maritime Chokepoints

The current geopolitical landscape across key maritime chokepoints reflects a shift from episodic disruption to sustained operational uncertainty. The Persian Gulf, Red Sea and Gulf of Aden remain central to global shipping, energy flows and India-linked maritime movement, but recent transit and incident data indicate that commercial vessels are operating in a more constrained and risk-sensitive environment. The pattern is especially relevant for India because Indian-flagged vessels, Indian-interest vessels and Indian seafarers continue to transit these corridors despite heightened security conditions.

Geopolitical Landscape of Key Maritime Chokepoints



Routes remain navigable, but risk is differentiated: geopolitical constraint at Hormuz, merchant-shipping attacks around Bab el Mandeb, and piracy in the Gulf of Aden.

STRAIT OF HORMUZ | TRANSIT TIMELINE (INDIAN FLAGGED VESSELS OR VESSELS OF INDIAN INTERESTS)

19	1 Mar-17 Jun Before Iran-USA MoU	40	17 Jun-18 Jul After MoU signing	04	18 Jul-Present After Iran announced suspension of MoU commitments	63	Since 1 March -Present Total transits of Indian Flagged Vessels or Vessels of Indian Interest
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STRAIT OF HORMUZ

5.8%

of historical capacity

8/day vs 138/day historic
baseline

- **264 transits** tracked over last one month
- **94.2% reduction** from historical capacity
- **46.2%** niche / grey / emerging registries

Details obtained from IFC-IOR for vessels (>100 metres) including all flags

BAB EL MANDEB

>50%

traffic decline

~76/day mid-Jul → ~34/day early
Aug

- **1,410 transits** tracked over last one month
- **44/day** vs 65-75/day under normal conditions
- **No formal restriction** on transit
- **4 incidents** since 15 Jul 2026

GULF OF ADEN

6

piracy incidents since Apr 2026

All incidents on foreign-flagged
vessels

- **5 of 6 vessels** carried Indian seafarers
- **23 Indian seafarers** were onboard in total
- **Latest listed incident:** 17 August 2026

4

In the Persian Gulf, the Strait of Hormuz continues to represent the most strategically sensitive chokepoint. During the reporting period of 15 July 2026 to 16 August 2026, 63 Indian-flagged or Indian-interest vessels transited the Strait, comprising 24 Indian-flagged and 39 foreign-flagged vessels. The vessel mix included bulk carriers, LPG carriers, crude oil tankers, container vessels, LNG carriers, an oil/chemical tanker and a diving support vessel, demonstrating the breadth of cargo exposure linked to this corridor. However, the wider IFC-IOR-based traffic picture shows a sharp compression in overall movement, with 264 vessels tracked over 33 days and an average of only 8 transits per day against a historic baseline of 138 transits per day. This indicates that the Strait was operating at approximately 5.8% of historical capacity, reflecting a severe structural reduction in throughput.

The Hormuz transit pattern also reveals the impact of political developments on vessel behaviour. Prior to the Iran-USA MoU, 19 transits were recorded between 1 March and 17 June; after the MoU, 40 transits were recorded between 17 June and 18 July; following Iran's formal announcement suspending its commitments under the MoU, only 04 transits were recorded thereafter. This sharp decline suggests that legal, diplomatic and military signalling translated directly into reduced commercial confidence. Directional flows also fluctuated significantly, with alternating phases of inbound suppression, outbound export surges, inbound convoy arrivals and eventual contraction. The presence of convoy-type clearing patterns and abrupt multi-day lulls indicates that shipping decisions were increasingly shaped by security windows, naval coordination and risk-based voyage planning rather than normal market demand alone.

The flag composition of transiting vessels further illustrates how geopolitical risk reshaped maritime behaviour. Niche, grey and emerging open registries represented the largest share of tracked transits, accounting for 46.21%, followed by traditional Tier-1 open registries at 39.77%. Iranian-flagged vessels accounted for 11.36%, while other national or sovereign flags, including India, represented only 2.65%. This distribution suggests that risk-tolerant operators and open registries continued operating where

major sovereign and mainstream commercial fleet operators showed greater caution. The absence or near-absence of several major Western and Asian sovereign flags reflects a wider pattern of risk aversion, charterer rerouting and commercial withdrawal from high-risk waters.

The Red Sea and Bab el Mandeb Strait present a different but equally important geopolitical risk profile. Since 23 July 2026, 15 Indian-flagged or Indian-interest vessels transited the Bab el Mandeb Strait, including 08 Indian-flagged and 07 foreign-flagged vessels. The traffic included crude oil tankers, container vessels, oil/chemical tankers and bulk carriers, with eastbound movements significantly exceeding westbound movements. Although there was no formal restriction on transit through the Strait, caution remained necessary due to attacks on merchant vessels in the area. The broader IFC-IOR data recorded 1,410 transits through Bab el Mandeb over 32 days, averaging 44 transits per day against a normal undisrupted level of approximately 65 to 75 commercial vessel transits per day. This indicates that although the corridor remained open, traffic levels had materially reduced from normal operating conditions.

The Red Sea traffic pattern shows a steep decline from a high-volume phase in mid-July, when average daily transits were above 75, to a consolidation phase in early August, when the average fell to approximately 33.8 daily transits. This decline suggests that shipowners and charterers were actively reassessing route risk, potentially diverting vessels, modifying sailing schedules or relying on AIS discretion in response to security advisories and regional instability. For India, disruption in this corridor carries significance beyond vessel security because Bab el Mandeb connects the Indian Ocean to the Suez Canal route and therefore influences trade connectivity between Asia, Europe and the Mediterranean region.

In the Gulf of Aden, the geopolitical landscape is shaped less by conventional interstate conflict and more by piracy risk, crew safety concerns and instability near the Somali coast. Since April 2026, 06 piracy incidents were recorded in the region, all involving foreign-flagged vessels, with 23 Indian seafarers onboard across affected vessels. Reported cases included vessels flagged to Palau, Togo, Tanzania, St. Vincent and Cameroon. While some cases indicated safe crew status and ongoing negotiations, the reported hijacking of M.V. LUTUF near the Somali coast demonstrates that piracy remains an active and evolving threat. The presence of Indian seafarers onboard several affected vessels underlines the human-security dimension of the Gulf of Aden risk environment.

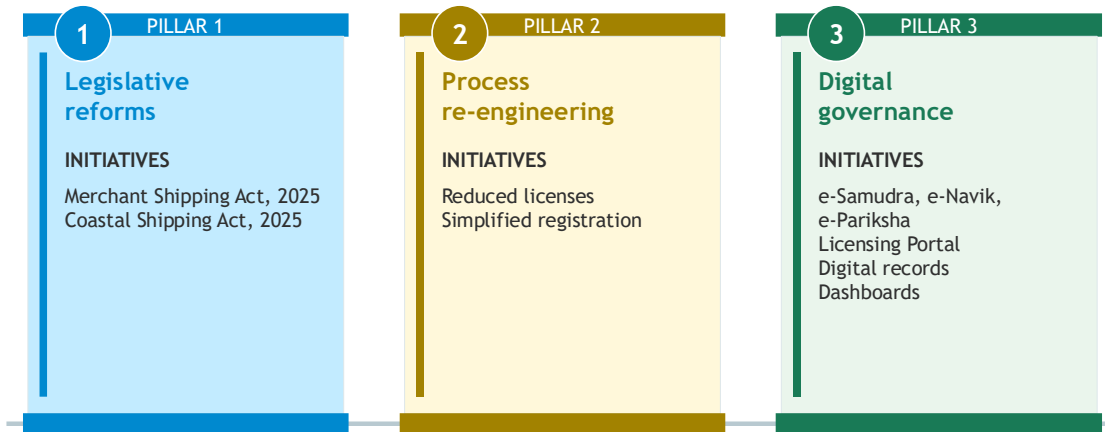
Taken together, these chokepoints demonstrate that maritime risk is no longer limited to isolated incidents but is increasingly linked to broader geopolitical signalling, sanctions-related uncertainty, armed conflict, piracy, route diversion and insurance repricing. The Strait of Hormuz reflects energy-security exposure and geopolitical escalation risk; Bab el Mandeb reflects trade-route vulnerability and the fragility of Asia-Europe connectivity; and the Gulf of Aden reflects persistent crew-safety and piracy-related risk. For India, the combined effect is a need for continuous maritime domain awareness, close coordination with IFC-IOR inputs, stronger seafarer welfare monitoring, diversified sourcing and routing strategies, and sustained engagement with Indian-flagged and Indian-interest vessels operating in high-risk waters.

3. Legislative Reforms and EoDB

Legislative Reforms and Ease of Doing Business Initiatives



Three coordinated streams connect statutory reform, process simplification and digital enablement.



5

3.1. Transforming Maritime Administration through Regulatory and Digital Reforms

India's maritime sector is undergoing a significant transformation driven by the twin objectives of improving Ease of Doing Business (EoDB) and enhancing the efficiency of maritime governance. As the country's maritime economy expands in line with the objectives of Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047, it has become essential to modernize the legislative framework governing shipping, simplify administrative procedures and leverage digital technologies for service delivery.

Recognizing these requirements, the Government has adopted a three-pronged reform strategy comprising legislative reforms, process re-engineering and digital governance. Together, these reform streams seek to create a modern, transparent and globally competitive maritime regulatory ecosystem capable of supporting sustainable growth in shipping, ports, coastal trade and maritime services.

3.2. Legislative Reforms: Establishing a Modern Regulatory Framework

The first pillar of reform focuses on strengthening the legal and policy foundation of the maritime sector through comprehensive legislative modernization. Historically, several maritime laws were based on legacy provisions that no longer reflected emerging industry requirements, technological advancements and international best practices.

To address these challenges, the Government enacted the Merchant Shipping Act, 2025 and the Coastal Shipping Act, 2025. These landmark legislations represent a major step towards modernizing India's maritime governance framework.

The Merchant Shipping Act, 2025 seeks to provide a contemporary legal structure aligned with evolving international maritime conventions, modern shipping practices and advancements in maritime technology. The legislation aims to promote regulatory clarity, improve compliance mechanisms and facilitate the growth of India's shipping sector while maintaining high standards of safety, security and environmental protection.

Similarly, the Coastal Shipping Act, 2025 establishes a dedicated legal framework for the promotion and regulation of coastal shipping activities. By providing greater policy certainty and operational clarity, the Act is expected to strengthen coastal cargo movement, encourage modal shift from road and rail transport and support the development of a more efficient and environmentally sustainable logistics network.

Together, these legislative reforms provide the regulatory foundation necessary for achieving long-term maritime growth while improving investor confidence and facilitating business operations across the sector.

3.3. Process Re-engineering: Simplifying Regulatory Procedures

The second pillar of reform focuses on process re-engineering aimed at reducing administrative burdens, streamlining approval mechanisms and improving service delivery.

Traditionally, maritime stakeholders were required to navigate multiple procedures and obtain numerous approvals across different stages of vessel registration, certification and licensing. Such processes often increased compliance costs and extended transaction timelines.

To address these concerns, significant efforts have been undertaken to reduce the number of licenses and simplify registration procedures across various maritime services. The rationalization of regulatory requirements has enabled stakeholders to complete essential approvals through more efficient and transparent mechanisms.

Simplified registration processes have reduced procedural complexity for ship owners, operators, seafarers and maritime enterprises. These measures have helped decrease processing times, improve regulatory predictability and minimize administrative delays. The reforms also contribute to enhancing India's competitiveness as a maritime destination by aligning regulatory procedures with global best practices.

Process simplification further supports the Government's broader Ease of Doing Business agenda by creating a more user-centric regulatory environment while ensuring that essential safety, security and compliance standards continue to be maintained.

3.4. Digital Governance: Leveraging Technology for Maritime Service Delivery

The third pillar of reform focuses on the digital transformation of maritime administration through the adoption of integrated electronic platforms and digital governance tools.

The digitalization of maritime services has significantly improved accessibility, transparency and efficiency across the sector. Several key digital platforms have been introduced to enable seamless interaction between stakeholders and regulatory authorities.

The e-Samudra platform serves as an integrated digital interface for maritime services, facilitating online processing and reducing dependence on physical documentation. Similarly, e-Navik has modernized seafarer-related services by enabling digital processing of certifications and professional documentation.

The e-Pariksha platform supports the conduct and management of examinations through digital means, enhancing efficiency and standardization. The Licensing Portal has further streamlined regulatory approvals by providing stakeholders with a centralized platform for submitting applications and tracking status updates.

In addition, the creation of digital records and real-time dashboards has strengthened governance capabilities by improving data availability, monitoring and decision-making. Digital records reduce paperwork, improve accuracy and enhance transparency, while dashboards provide regulatory authorities with timely insights into operational performance and service delivery outcomes.

Collectively, these initiatives represent a significant shift from traditional paper-based administration towards a technology-driven governance model capable of supporting the evolving requirements of India's maritime sector.

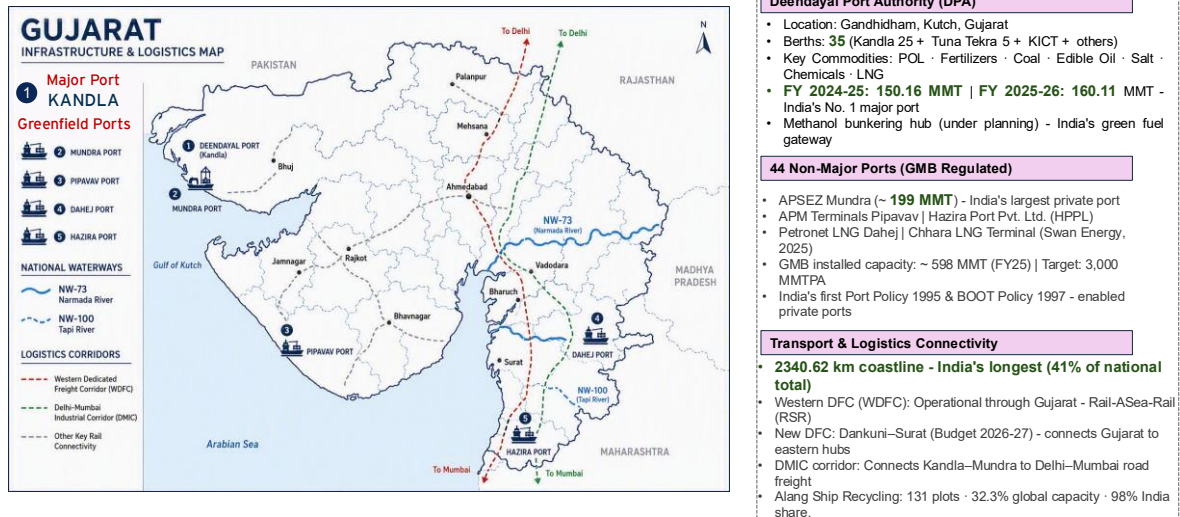
3.5. Integrated Impact of the Three Reform Pillars

The effectiveness of the reform programme lies in the coordinated implementation of all three pillars. Legislative reforms provide the legal basis for modernization, process re-engineering simplifies interactions between stakeholders and regulators, while digital governance ensures efficient and transparent service delivery.

Together, these initiatives are creating a more responsive and investor-friendly maritime ecosystem. The reforms support faster decision-making, reduce compliance burdens, improve regulatory certainty and enhance stakeholder experience across the maritime value chain.

4. Port Infrastructure

Overview of Port Infrastructure in Gujarat



4.1. Gujarat as a Strategic Maritime and Logistics Gateway

Gujarat occupies a highly significant position in India's maritime economy due to its long coastline, extensive port network and strong connectivity with national freight corridors. With a coastline of approximately 2,340.62 km, Gujarat accounts for the longest coastline among Indian coastal States and represents about 41% of India's national coastline. This geographic advantage has enabled the State to emerge as one of the most important maritime gateways for international trade, coastal cargo movement, industrial logistics and energy supply chains.

The port infrastructure of Gujarat is distinguished by the presence of both major and non-major ports. The State hosts Deendayal Port at Kandla, which is a major port under the Deendayal Port Authority, along with a large network of 44 non-major ports regulated by the Gujarat Maritime Board (GMB). This dual port structure has allowed Gujarat to develop a diversified maritime ecosystem comprising public ports, private ports, captive jetties, LNG terminals, petroleum handling facilities, container terminals, bulk cargo facilities and ship-recycling infrastructure.

The State's port-led development model has been further strengthened by its road, rail and dedicated freight corridor connectivity. Gujarat's ports are linked to major industrial and consumption centres in northern, western and central India, thereby enabling efficient cargo evacuation and multimodal logistics integration. In this context, Gujarat's port infrastructure plays a central role not only in the State's economic development but also in India's broader maritime trade and logistics competitiveness.

4.2. Port Network and Spatial Distribution

Gujarat's port infrastructure is spread across its coastline from the Gulf of Kutch to the southern coastal belt adjoining Maharashtra. The State's maritime map indicates the strategic placement of major and greenfield ports along its coastline, with important ports such as Kandla, Mundra, Pipavav, Dahej and Hazira serving as key maritime nodes.

Kandla, operating under the Deendayal Port Authority, is identified as the major port in Gujarat. In addition, the State has developed several prominent greenfield and private ports, including Mundra Port, Pipavav Port, Dahej Port and Hazira Port. These ports have significantly expanded Gujarat's cargo handling capability and have supported the growth of industries such as petroleum, petrochemicals, fertilizers, coal, edible oil, salt, LNG, containers and other bulk commodities.

The concentration of ports along the Gulf of Kutch and the western coast of Gujarat reflects the State's natural maritime advantage and its proximity to key international shipping routes in the Arabian Sea. The location of these ports also provides Gujarat with strong trade connectivity to the Middle East, Africa, Europe and other global markets.

4.3. Deendayal Port Authority: Gujarat's Major Port Gateway

Deendayal Port Authority, located at Gandhidham, Kutch, Gujarat, serves as one of India's most important public sector ports. The slide identifies Deendayal Port as having 35 berths, comprising 25 berths at Kandla, 5 berths at Tuna Tekra, and additional facilities including KICT and others.

The port handles a wide range of key commodities, including POL, fertilizers, coal, edible oil, salt, chemicals and LNG. This cargo profile demonstrates the strategic importance of Deendayal Port in supporting both energy-linked and industrial supply chains. Its ability to handle diverse commodity groups enables the port to serve as a critical logistics gateway for northern and western India.

The cargo figures presented in the slide show that Deendayal Port handled 150.16 MMT in FY 2024-25, while the projected or indicated figure for FY 2025-26 is 160.11 MMT. This reflects the continued importance of the port as India's leading major port in terms of cargo handling. The port's performance reinforces Gujarat's position as a dominant maritime State and highlights the role of Kandla as a high-volume cargo gateway.

The slide also notes that a methanol bunkering hub is under planning at Deendayal Port. This is significant from the perspective of green fuel transition and future-ready maritime

infrastructure. As the global shipping sector moves towards cleaner fuels and alternative bunkering solutions, the development of such facilities may strengthen India's preparedness for low-carbon maritime operations.

4.4. Non-Major Ports under Gujarat Maritime Board

Apart from the major port at Kandla, Gujarat has an extensive network of 44 non-major ports regulated by the Gujarat Maritime Board. This decentralized and commercially dynamic port network has been instrumental in enabling Gujarat's port-led industrial development.

The slide identifies several important non-major and private port operators, including APSEZ Mundra, which handles approximately 199 MMT and is described as India's largest private port. Other important port entities include APM Terminals Pipavav, Hazira Port Pvt. Ltd., and Petronet LNG Dahej. The inclusion of LNG and terminal-based infrastructure indicates that Gujarat's non-major ports support both conventional cargo and specialized energy logistics.

The slide further mentions that Gujarat Maritime Board has an installed capacity of approximately 598 MMT in FY 2025, with a target of 3,000 MMTPA. This indicates the scale of Gujarat's future port expansion ambition and demonstrates the State's intention to remain at the forefront of India's maritime capacity development.

A key factor behind the growth of Gujarat's non-major ports has been the policy support provided by the State. The slide refers to India's first Port Policy of 1995 and the BOOT Policy of 1997, which enabled private port development in Gujarat. These policy measures helped create a framework for private participation, infrastructure investment and commercially driven port expansion. As a result, Gujarat became one of the earliest Indian States to successfully demonstrate the potential of non-major ports as engines of maritime and industrial growth.

4.5. Strategic Importance of Mundra, Dahej, Pipavav and Hazira

Within Gujarat's non-major port network, ports such as Mundra, Dahej, Pipavav and Hazira have emerged as important maritime infrastructure assets. Mundra has developed into a major private port and logistics hub, supporting large-scale cargo movement and integrated supply chain operations. Its role is particularly important in container handling, bulk cargo movement and industrial logistics.

Dahej has strategic relevance due to its association with LNG and industrial cargo. The presence of Petronet LNG Dahej underlines the importance of Gujarat in India's energy import infrastructure. LNG terminals and associated port facilities contribute directly to energy security by enabling the import, storage and distribution of natural gas.

Pipavav, operated by APM Terminals, contributes to Gujarat's container and general cargo handling ecosystem. Its position on the Saurashtra coast supports maritime connectivity and provides an additional gateway for cargo movement. Hazira, located near the industrial belt of south Gujarat, is also significant due to its proximity to manufacturing, steel, petrochemical and industrial clusters.

Together, these ports strengthen Gujarat's multi-port system and reduce dependence on a single maritime gateway. The presence of both public and private port infrastructure enhances operational resilience, improves cargo-handling flexibility and supports the State's position as a leading maritime logistics hub.

4.6. Transport and Logistics Connectivity

The effectiveness of Gujarat's port infrastructure is closely linked to its strong transport and logistics connectivity. The slide highlights the role of the Western Dedicated Freight Corridor (WDFC), which is operational through Gujarat and supports rail-based cargo evacuation. This corridor enhances the movement of goods from Gujarat's ports to major inland markets and industrial centres.

The slide also mentions the proposed or upcoming New DFC between Dankuni and Surat, which is expected to connect Gujarat with eastern hubs. Such connectivity can improve the integration of western ports with eastern and northern markets, thereby supporting more balanced national freight movement.

In addition, the Delhi-Mumbai Industrial Corridor (DMIC) connects the Kandla-Mundra port cluster with the Delhi-Mumbai road freight network. This strengthens Gujarat's role in industrial logistics by linking port infrastructure with manufacturing zones, road corridors and inland consumption centres.

The map also indicates major logistics corridors, including the Western Dedicated Freight Corridor, the Delhi-Mumbai Industrial Corridor and other key rail connectivity. These corridors provide Gujarat's ports with hinterland access to Delhi, Mumbai and other major economic centres. This connectivity is a critical factor in enabling efficient cargo evacuation, reducing logistics costs and improving the competitiveness of Indian exports and imports.

4.7. Inland Waterways and Multimodal Connectivity

While Gujarat's maritime strength is primarily associated with seaports, the presence of national waterways indicates the possibility of developing inland water transport linkages as part of a broader multimodal logistics system.

The integration of ports, rail corridors, road networks and inland waterways can support more efficient cargo movement and reduce pressure on conventional transport systems.

For a coastal State with high industrial cargo generation, such multimodal connectivity is important for improving logistics efficiency and supporting sustainable freight movement.

5. Focus on Sikka and Jamnagar Maritime Cluster

Strategic Importance of Gujarat's Non-Major Ports: Focus on Sikka, Jamnagar



GUJARAT NON-MAJOR PORTS | FY 2024 –25

48

non-major ports

19

cargo-handling ports

487.73 MT

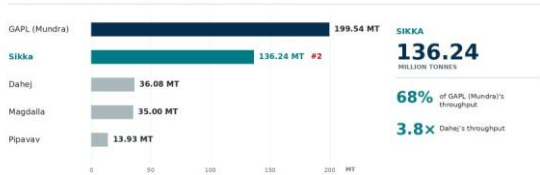
cargo handled

65.7%

of India's non-major cargo

Cargo handled at leading ports

FY 2024–25 | million tonnes



Source: Figures constructed from the supplied table image.

Sikka: 136.24 MT — second only to GAPL (Mundra)

Cargo mix: POL, LNG/LPG, coal & coke, containers, chemicals & fertilizers, coastal cargo and industrial cargo.

Why Sikka is strategically important

- Cargo scale** **136.24 MT** in FY 2024–25 makes Sikka one of Gujarat's largest non-major cargo ports.
- Major energy gateway** POL dominates non-major port traffic. The Sikka–Vadinar–Jamnagar corridor combines crude imports, product exports and petrochemical logistics linked to Jamnagar's refining complexes.
- Gulf of Kutch advantage** **Deep-water access**, proximity to **energy and industrial clusters**, and connectivity with **global shipping routes**.

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5.1. Introduction

Gujarat's non-major ports play a decisive role in India's maritime cargo movement and industrial logistics. In FY 2024-25, Gujarat had 48 non-major ports, of which 19 were cargo-handling ports, collectively handling 487.73 MT of cargo. This accounted for around 65.7% of India's non-major port cargo, underlining Gujarat's dominant position in the country's non-major port sector.

Among these ports, Sikka holds particular strategic importance due to its scale of cargo handling and its close linkage with the Jamnagar refining and petrochemical complex. In FY 2024-25, Sikka handled 136.24 MT of cargo, making it the second-largest non-major cargo port in Gujarat after GAPL Mundra, which handled 199.54 MT. Sikka's cargo volume was significantly higher than other leading ports such as Dahej, Magdalla and Pipavav, reflecting its importance in Gujarat's port-led industrial economy.

5.2. Strategic Role of Sikka

Sikka's importance is primarily derived from its role as a major energy and industrial cargo gateway. The port handles commodities such as POL, LNG/LPG, coal and coke, containers, chemicals and fertilizers, along with coastal and industrial cargo. Its location along the Sikka-Vadinar-Jamnagar corridor makes it highly relevant for crude oil imports, product exports and petrochemical logistics linked to Jamnagar's large refining and downstream industrial ecosystem.

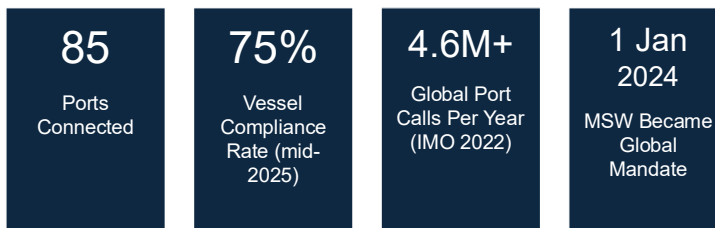
The port also benefits from its location in the Gulf of Kutch, which provides deep-water access, proximity to energy and industrial clusters, and connectivity with global shipping routes. These factors make Sikka a critical maritime node for supporting India's energy supply chains, petroleum movement and industrial cargo flows. Its cargo scale, commodity profile and geographic advantage together place it among the most strategically significant non-major ports in Gujarat.

6. Maritime Single Window

Maritime Single Window



India's Maritime Single Window (MSW) — operationalized by the Directorate General of Shipping in January 2024 — is a transformative digital platform that enables shipowners, operators, and agents to submit all port-call declarations electronically through a single unified portal. Aligned with the International Maritime Organization (IMO) mandate under the FAL Convention (Resolution FAL.14(46)), the MSW eliminates paper-based, multi-agency submissions, replacing them with one-stop digital clearance. With vessel compliance rates reaching 75% across 85 ports by mid-2025, India's MSW positions the nation as a forward-looking maritime power, fully aligned with global standards and the vision of Maritime India Vision 2030.



8

6.1. Digital Integration of Port-Clearance Processes

India's Maritime Single Window (MSW) represents an important step towards digital transformation and process simplification in the maritime sector. Operationalized by the Directorate General of Shipping in January 2024, the platform enables shipowners, operators and agents to submit port-call declarations electronically through a single unified portal. This replaces multiple paper-based and agency-wise submissions with a more integrated and transparent digital clearance mechanism.

The MSW is aligned with the International Maritime Organization's mandate under the FAL Convention, which requires member countries to adopt electronic information exchange for ship arrival, stay and departure formalities. With global shipping handling millions of port calls annually, the move towards a single-window system is essential for reducing procedural delays, improving data consistency and enhancing the ease of doing business in maritime operations.

India's MSW has achieved connectivity across 85 ports, with vessel compliance reaching around 75% by mid-2025. This indicates a significant shift towards digital adoption across the port ecosystem. By enabling online submission, faster processing and better coordination among stakeholders, the platform strengthens India's capacity to meet international standards in maritime governance.

6.2. Significance

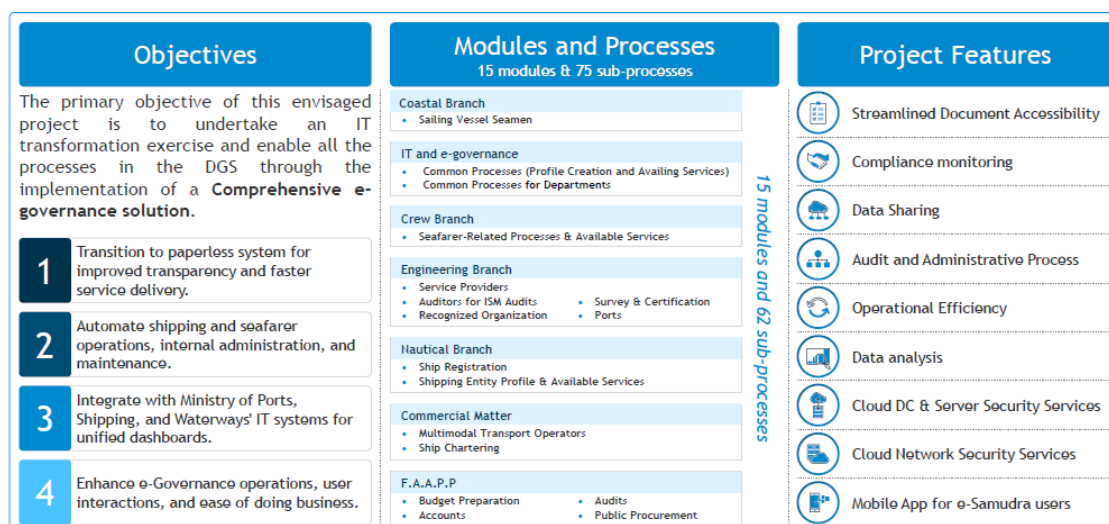
The Maritime Single Window supports the broader objectives of Maritime India Vision 2030 by promoting paperless clearance, reducing administrative duplication and improving efficiency in port-call management. It also enhances transparency by creating a unified digital record of vessel-related declarations and approvals.

By integrating port authorities, shipping agents, vessels, cargo interests and government agencies through a common platform, MSW contributes to faster turnaround, improved compliance monitoring and more predictable maritime operations. Its implementation marks a major transition from conventional documentation-based procedures to a modern digital governance framework for Indian ports.

7. Digitalisation

7.1. E-Samudra

E-Samudra



The Directorate General of Shipping has initiated the e-Samudra programme as a comprehensive digital governance platform aimed at transforming maritime administration through end-to-end digitisation of regulatory processes, stakeholder services and internal workflows. The initiative is designed to support the transition from fragmented and paper-based systems to an integrated digital ecosystem capable of providing seamless service delivery, improving transparency and strengthening regulatory oversight. As the maritime sector continues to expand in scale and complexity, there is an increasing need for technology-enabled governance frameworks that can efficiently support shipping operations, seafarer services, vessel administration and maritime regulatory functions. The e-Samudra platform has therefore been conceptualised as a foundational pillar of maritime digital transformation within the Directorate General of Shipping.

The primary objective of the initiative is to create a comprehensive e-governance solution that integrates multiple functions and processes under a unified digital architecture. The platform seeks to enable paperless processing, automated workflows, secure data management and improved service delivery across the maritime administration. By digitising regulatory and administrative functions, e-Samudra aims to reduce processing timelines, improve stakeholder convenience and enhance transparency in service delivery. The shift towards digital governance also aligns with broader national objectives relating to digital transformation, ease of doing business and efficient public service delivery.

A significant feature of the platform is its extensive coverage of maritime regulatory functions through multiple digital modules and sub-processes. The system is designed to support activities across various branches including coastal shipping administration, seafarer services, engineering and survey functions, ship registration, certification, commercial shipping matters and internal administrative processes. By integrating these diverse functions within a common digital environment, the platform facilitates seamless information flow and reduces dependency on isolated systems. The resulting interoperability is expected to improve efficiency while enabling better coordination across different departments and functional areas.

The implementation of e-Samudra will support complete transition towards paperless operations for a wide range of maritime services. Digital submission of applications, electronic processing of records and online issuance of approvals and certificates will significantly reduce physical documentation requirements. In addition to improving convenience for stakeholders, paperless processing enhances traceability, reduces administrative burden and contributes towards more environmentally sustainable governance practices. Greater transparency in workflows can also improve accountability and strengthen confidence among maritime stakeholders interacting with the administration.

Another important objective of the platform is the automation of shipping and seafarer-related processes. Automation of routine activities enables more efficient management of applications, approvals, records and regulatory transactions while reducing the possibility of manual errors and process delays. The initiative also seeks to strengthen integration with digital systems maintained by the Ministry of Ports, Shipping and Waterways and other government entities, thereby facilitating exchange of information and creation of unified monitoring frameworks. Such integration will support data-driven decision-making and improve visibility across various maritime functions.

The platform incorporates several features aimed at strengthening governance, compliance monitoring and operational efficiency. Enhanced document accessibility, digital record management and data-sharing capabilities will facilitate easier access to information while maintaining appropriate security and governance safeguards. Integrated compliance monitoring functions will improve regulatory oversight and support timely identification of non-compliance issues. The platform also enables

structured audit and administrative processes, thereby strengthening institutional governance and improving overall effectiveness of maritime administration.

Technology-enabled data analysis forms an important component of the e-Samudra framework. The availability of consolidated data across multiple functions provides opportunities for generating insights that can support policy development, operational planning and performance monitoring. Analytical capabilities can assist administrators in identifying trends, monitoring service delivery performance and evaluating the effectiveness of regulatory interventions. Such data-driven governance approaches contribute towards more informed decision-making and continuous improvement in administrative processes.

Given the critical nature of maritime regulatory information, the platform has also been designed with strong emphasis on digital security and system resilience. Cloud infrastructure, network security measures and secure data management practices are intended to support business continuity, protect sensitive information and ensure reliability of digital services. The inclusion of mobile application support further improves accessibility by enabling stakeholders to access services and information through multiple digital channels. This enhances user experience and facilitates greater adoption of digital services across the maritime community.

Through the implementation of e-Samudra, the Directorate General of Shipping seeks to establish a modern digital governance ecosystem capable of supporting future maritime growth while improving service delivery, compliance management and ease of doing business. The platform represents a major step towards creating a transparent, efficient and stakeholder-centric maritime administration aligned with the objectives of Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047. By integrating regulatory functions, automating processes and enabling data-driven governance, e-Samudra is expected to significantly strengthen the effectiveness and responsiveness of maritime administration in India.

7.2. E-Navik

E-Navik



24x7 Grievance Redressal Module 1. Dedicated platform for stakeholder grievances (seafarers, shipping companies, etc.) 2. Automated logging, tracking, and resolution of complaints 3. Ensures transparency, accountability, and swift response	Maritime Training Institute (MTI) Module 1. Centralized system for MTI approvals, seafarer profile generation, and certification updates 2. Ensures compliance with the latest training regulations 3. Improves the quality of seafarer education and certification
Crisis Response Module 1. Critical tool for handling maritime emergencies 2. Real-time registration and management of crises by authorized officials 3. Coordination with relevant agencies for a unified response 4. Enhances readiness, minimizes risks, and ensures safety	Recruitment and Placement Services License (RPSL) Module 1. Oversees licensing and regulation of seafarer recruitment and placement agencies 2. Streamlines the application and renewal process for RPS licenses 3. Monitors and enforces compliance to prevent malpractices

The e-Navik platform represents a major component of the Directorate General of Maritime Administration's digital transformation agenda and is designed to function as an integrated digital ecosystem for seafarer services, stakeholder engagement, regulatory oversight and emergency response. As the maritime sector becomes increasingly digitised, there is a growing need for centralized platforms capable of delivering efficient services, strengthening governance and improving interaction between the maritime administration and stakeholders. The e-Navik initiative seeks to address these requirements by bringing together multiple operational and welfare-related functions within a unified digital framework.

A key component of the platform is the 24x7 Grievance Redressal Module, which is intended to provide a dedicated mechanism for receiving, tracking and resolving grievances raised by maritime stakeholders, including seafarers, shipping companies and other users of maritime services. The module seeks to improve transparency, accountability and responsiveness by enabling digital registration and monitoring of complaints throughout the resolution lifecycle. Automated workflows and tracking mechanisms will facilitate timely action on grievances while providing stakeholders with greater visibility regarding the status of their submissions. The initiative is expected to strengthen confidence in administrative processes and ensure more efficient handling of stakeholder concerns.

The platform also incorporates a dedicated Maritime Training Institute (MTI) Module aimed at streamlining administration and oversight of maritime training institutions. The module is designed to support functions such as institute approvals, seafarer profile management, certification updates and regulatory compliance monitoring. By centralizing information relating to maritime education and training, the system enhances transparency and facilitates more effective supervision of training activities. The module is expected to improve adherence to evolving training standards while supporting consistent delivery of maritime education and certification services across approved training institutions.

Another significant component is the Recruitment and Placement Services License (RPSL) Module, which focuses on regulation and monitoring of recruitment and placement agencies operating within the maritime sector. Recruitment agencies play a critical role in connecting seafarers with employment opportunities, and effective oversight is essential for protecting seafarers from fraudulent practices and ensuring compliance with applicable regulations. The module digitises licensing, renewal and compliance-related processes, enabling improved monitoring and more efficient administration of recruitment agencies. Enhanced regulatory oversight through the platform is expected to strengthen transparency and contribute towards prevention of malpractice within the crewing ecosystem.

The Crisis Response Module represents an important welfare and emergency management tool within the e-Navik framework. Maritime operations frequently involve situations requiring coordinated response across multiple agencies, including accidents, emergencies, abandonment cases, welfare incidents and other crisis

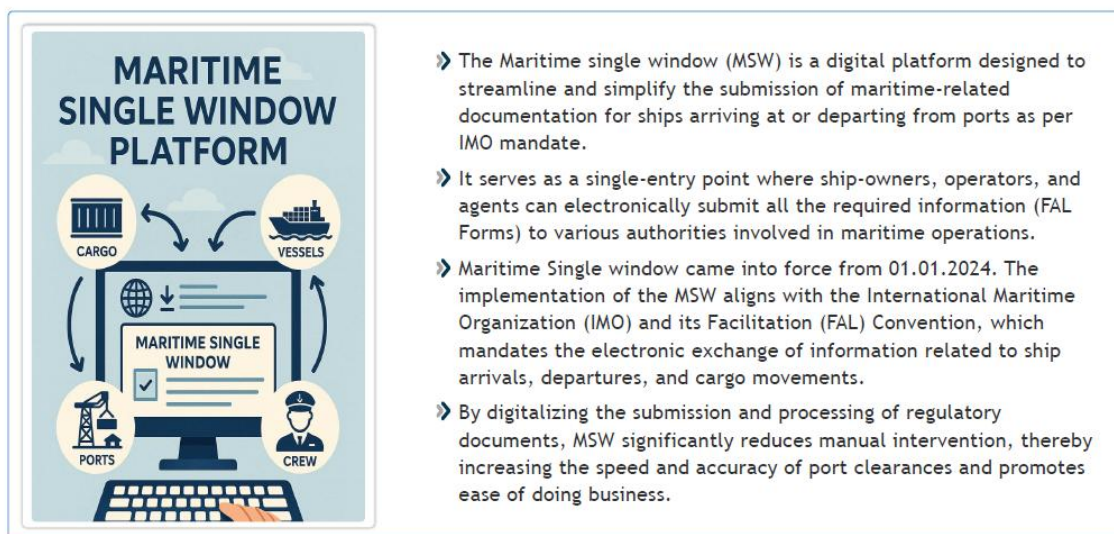
situations affecting seafarers and vessels. The module is designed to facilitate real-time registration, monitoring and management of crisis events by authorised officials. By establishing a digital mechanism for coordination and information sharing, the system supports timely intervention and strengthens preparedness for handling maritime emergencies. Improved coordination among relevant agencies can enhance the effectiveness of response measures while helping minimise risks and safeguard the welfare of affected personnel.

Collectively, the various modules within e-Navik contribute towards creating a more responsive, transparent and digitally enabled maritime administration. The platform strengthens service delivery by integrating welfare functions, regulatory oversight, training governance, grievance handling and crisis management within a common digital environment. Such integration improves operational efficiency, reduces administrative delays and facilitates data-driven decision-making across multiple areas of maritime administration. The initiative also aligns with broader objectives relating to ease of doing business, seafarer welfare and digital governance under Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047.

The implementation of e-Navik is expected to significantly improve stakeholder experience while strengthening institutional capacity within the maritime administration. By providing digital access to services, improving monitoring capabilities and enhancing coordination across different functional areas, the platform establishes a modern governance framework capable of supporting the evolving needs of India's maritime sector. The initiative represents a key step towards creating a more efficient, transparent and stakeholder-centric maritime ecosystem supported by technology-enabled governance and service delivery.

7.3. Maritime Single Window

Maritime Single Window



The Maritime Single Window (MSW) represents one of the most significant digital reforms undertaken in the maritime sector to facilitate paperless and seamless exchange of information relating to ship arrivals, departures and cargo operations. The platform has been developed in accordance with the International Maritime Organization's Facilitation (FAL) Convention, which mandates electronic transmission and exchange of information between ships and shore authorities. Traditionally, shipowners, operators and agents were required to submit similar information separately to multiple regulatory agencies, resulting in duplication of effort, increased compliance burden and delays in processing. The Maritime Single Window seeks to eliminate these inefficiencies by providing a unified digital interface through which all required information can be submitted once and shared electronically with relevant authorities.

The platform functions as a single-entry digital gateway for stakeholders involved in maritime transport and port operations. Through the system, shipowners, operators, masters and shipping agents can electronically submit mandatory information and FAL forms required by various government agencies. The digital integration of multiple authorities into a common platform reduces the need for repetitive submissions and manual document handling while ensuring greater consistency and accuracy of information. This approach aligns with international best practices and supports the global trend towards digitalisation of maritime logistics and port clearance processes.

The implementation of the Maritime Single Window marks a major step towards compliance with international facilitation requirements and strengthening India's position as a modern maritime nation. By aligning domestic procedures with IMO standards, the platform facilitates smoother interaction between ships and regulatory authorities while enhancing operational efficiency within the port ecosystem. The initiative also supports international shipping companies operating in Indian waters by providing standardised and predictable digital processes consistent with global maritime practices. Such alignment is important for improving stakeholder confidence and strengthening India's attractiveness as a maritime and logistics destination.

A major advantage of the system lies in its ability to significantly reduce manual intervention in regulatory and administrative processes. Digital submission and processing of information eliminates dependence on physical documentation and enables faster transmission of data across agencies. Reduction in manual processing not only improves speed but also enhances data quality, minimises errors and strengthens transparency. Automated workflows facilitate quicker review and approval processes, thereby contributing to more efficient port clearances and reduced vessel turnaround times. These improvements directly support operational efficiency within ports and shipping operations.

The platform also contributes to enhanced coordination among various authorities involved in maritime operations. Multiple government departments and regulatory entities require information relating to vessel arrivals, cargo movements, crew details and operational clearances. The Maritime Single Window enables these agencies to access and utilise information from a common digital source, thereby improving

coordination and reducing delays caused by fragmented communication channels. Better information sharing supports faster decision-making and strengthens the overall effectiveness of maritime administration.

From an ease-of-doing-business perspective, the introduction of the Maritime Single Window is expected to generate substantial benefits for the shipping and logistics sector. Simplification of documentation requirements, reduction of administrative burden and faster processing timelines help reduce compliance costs and improve predictability of port-related procedures. These improvements are particularly important for supporting trade facilitation, enhancing logistics competitiveness and creating a more efficient environment for shipping operators and maritime stakeholders. The initiative therefore contributes not only to regulatory modernisation but also to broader economic objectives relating to trade and logistics efficiency.

The Maritime Single Window forms an integral part of India's broader digital transformation agenda within the maritime sector. Together with initiatives such as e-Samudra, e-Navik and other digital governance platforms, the system supports the creation of an integrated and technology-enabled maritime ecosystem. By facilitating seamless exchange of information, enhancing transparency and improving service delivery, the platform contributes towards strengthening maritime governance while supporting the objectives of Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047. The initiative represents an important milestone in the development of a modern, efficient and globally aligned maritime administration capable of supporting the future growth of India's maritime economy.

7.4. Shipbuilding scheme portal

End-to-end digitized process via DGS shipbuilding portal

Application submission

Tracking

Digital issuance

Redemption

shipbuilding.dgshipping.gov.in

The Directorate General of Maritime Administration is increasingly leveraging digital technologies to improve governance, transparency and service delivery across various segments of the maritime sector. While significant progress has been achieved through initiatives such as e-Samudra, e-Navik and the Maritime Single Window, the shipbuilding

sector also requires a dedicated digital ecosystem capable of supporting efficient implementation of government support schemes and facilitating stakeholder interaction. In response to this requirement, a dedicated DGS Shipbuilding Portal has been developed to provide an end-to-end digital platform for administration of shipbuilding-related schemes and initiatives.

The portal has been designed to digitise the complete lifecycle of scheme administration and stakeholder interactions, thereby eliminating dependency on manual processes and physical documentation. Traditionally, applicants seeking benefits under shipbuilding incentive schemes were required to submit documents through multiple stages involving manual scrutiny, physical correspondence and extensive follow-up. Such processes often resulted in administrative delays and limited visibility regarding the status of applications. The digital platform addresses these challenges by providing a single integrated interface for application submission, processing, tracking and management. This contributes to greater transparency while significantly improving ease of doing business for stakeholders engaged in the shipbuilding sector.

A key feature of the portal is the ability to facilitate online submission of applications relating to various shipbuilding support measures and incentive schemes. Through a structured digital workflow, applicants can upload required documents, complete prescribed forms and submit requests electronically without physical interaction with multiple offices. Standardisation of the application process improves consistency, reduces administrative burden and supports faster processing of requests. The digital platform also enables easier record management and creates an auditable trail of all transactions undertaken through the system.

The portal further introduces real-time tracking and monitoring capabilities, allowing applicants and administrators to monitor the progress of applications through different stages of evaluation and approval. Improved visibility of application status enhances transparency and reduces uncertainty often associated with manual processing systems. Stakeholders are able to track developments electronically while administrators can monitor workflow efficiency and identify bottlenecks requiring intervention. Such transparency contributes towards greater accountability and improves confidence in scheme administration processes.

Digital issuance of approvals, certificates and related documentation represents another important component of the platform. By replacing traditional paper-based processes with electronically generated approvals and records, the portal improves operational efficiency while reducing processing timelines. Digital issuance also strengthens authenticity, improves accessibility and facilitates easier retrieval of records when required. The resulting reduction in paperwork and administrative effort contributes towards a more efficient and user-friendly regulatory environment.

The portal also supports digital management of redemption and benefit disbursement processes associated with government support schemes. Effective management of incentive claims requires accurate tracking, verification and documentation of eligibility

conditions. Integration of these activities within the digital platform enables more efficient administration, improves traceability and supports timely processing of eligible claims. Such capabilities are particularly important for schemes aimed at promoting domestic shipbuilding, fleet modernisation and maritime industrial development.

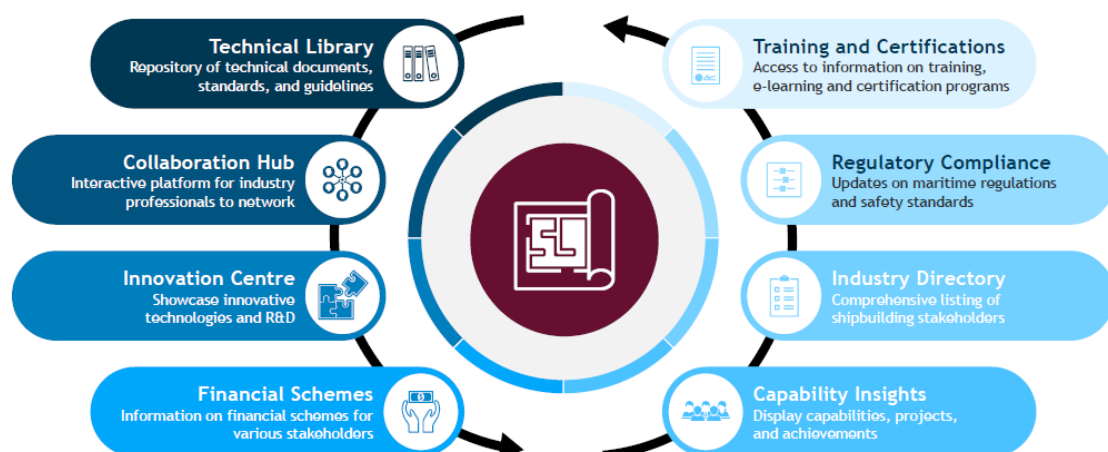
The implementation of the DGS Shipbuilding Portal aligns with broader national objectives relating to ease of doing business, digital governance and promotion of maritime manufacturing capabilities. Government initiatives such as the Shipbuilding Financial Assistance Scheme, Ship Recycling Credit Note Scheme and other shipbuilding support measures require efficient and transparent administrative mechanisms to maximise their effectiveness. A dedicated digital platform strengthens implementation capacity while improving accessibility and convenience for industry stakeholders seeking to participate in these programmes.

The portal also supports the long-term objective of creating a more competitive and investment-friendly shipbuilding ecosystem in India. By reducing administrative complexity, improving transparency and providing a predictable digital interface for interactions with the maritime administration, the platform contributes towards a more enabling business environment. Enhanced digital governance can encourage greater participation by shipyards, vessel owners and investors while supporting the broader objectives of Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047 relating to domestic shipbuilding capacity enhancement and maritime industrial development.

Through end-to-end digitisation of application processing, tracking, approvals and benefit administration, the DGS Shipbuilding Portal represents an important step towards modernising governance within the shipbuilding sector. The platform reinforces the commitment of the maritime administration towards technology-enabled service delivery and provides a transparent, efficient and stakeholder-centric mechanism for implementation of shipbuilding support initiatives.

7.5. Comprehensive shipbuilding portal

Comprehensive Shipbuilding portal development underway as a single digital gateway to integrate India's entire shipbuilding ecosystem



India's shipbuilding ecosystem is characterised by the participation of multiple stakeholders including shipyards, vessel owners, equipment manufacturers, classification societies, training institutions, financial institutions, technology providers and government agencies. While several policy initiatives have been introduced to support sectoral growth, information relating to schemes, regulations, technical standards, research activities and stakeholder capabilities often remains distributed across multiple sources. The absence of a unified digital platform limits collaboration, increases information asymmetry and creates challenges for industry participants seeking access to opportunities, guidance and institutional support. To address these challenges, a comprehensive Shipbuilding Portal is being developed as a single digital gateway to integrate and strengthen India's entire shipbuilding ecosystem.

The proposed platform is intended to function as a central repository of information and services relevant to all stakeholders across the shipbuilding value chain. By bringing together technical resources, regulatory information, industry databases, training opportunities, financial assistance schemes and collaboration tools within a single digital environment, the portal seeks to improve accessibility and reduce fragmentation of information. The initiative aligns with the broader objectives of creating a modern, technology-enabled and industry-focused maritime ecosystem capable of supporting long-term growth in domestic shipbuilding and ship repair activities.

A key component of the portal is the development of a Technical Library that will provide access to technical documents, design standards, guidelines, regulations and reference materials relevant to shipbuilding and related maritime industries. Easy access to updated technical information is critical for improving industry knowledge, strengthening compliance and facilitating adoption of best practices. The Technical Library is expected to serve as an important knowledge resource for shipyards, designers, engineers, researchers and regulators while supporting standardisation and quality enhancement across the sector.

The platform also envisages establishment of a Collaboration Hub to facilitate interaction among industry stakeholders. Shipbuilding projects often require close coordination among multiple participants including shipyards, designers, equipment suppliers, classification societies, academic institutions and research organisations. The proposed collaboration framework will provide opportunities for networking, knowledge sharing and partnership development, thereby strengthening industry linkages and supporting collective capacity building. Improved stakeholder connectivity can contribute significantly towards innovation, project execution and long-term sectoral growth.

Innovation and technology development form another important pillar of the proposed portal. Through a dedicated Innovation Centre, the platform seeks to showcase emerging technologies, research initiatives and indigenous innovations relevant to shipbuilding and marine engineering. The initiative will promote greater visibility of research and development activities while encouraging adoption of advanced technologies and innovative solutions across the industry. By creating a forum for exchanging ideas and

disseminating technological advancements, the portal can support competitiveness and facilitate development of a stronger domestic marine technology ecosystem.

The portal will further provide information relating to various Financial Schemes and support mechanisms available to industry participants. Access to funding support, incentive programmes and financial assistance schemes remains an important factor influencing investment decisions and sectoral growth. Consolidation of information relating to such schemes within a single platform will improve awareness among stakeholders and facilitate more effective utilisation of available government support measures. Enhanced visibility of financial assistance opportunities is expected to support expansion of domestic shipbuilding capacity and encourage greater industry participation.

Human resource development and regulatory awareness are also integral components of the proposed ecosystem. Dedicated sections relating to Training and Certifications will provide information on relevant courses, skill development programmes, certification pathways and e-learning opportunities. Simultaneously, the Regulatory Compliance component will keep stakeholders informed regarding maritime regulations, safety requirements and evolving compliance standards applicable to shipbuilding and ship repair activities. Improved access to training and regulatory information will contribute towards workforce development and strengthen overall industry compliance.

To improve visibility across the industry, the platform also proposes creation of an Industry Directory and Capability Insights framework. The Industry Directory will provide a structured listing of shipbuilding stakeholders, while the Capability Insights module will showcase projects, facilities, achievements and technical capabilities of participating organisations. Such features can facilitate business development, enhance transparency regarding available capacities and support collaboration among industry participants. Increased visibility of domestic capabilities will also help promote Indian shipyards and service providers before potential customers and investors.

The comprehensive Shipbuilding Portal represents a strategic step towards creating an integrated and digitally connected shipbuilding ecosystem in India. By combining technical resources, industry networking, innovation promotion, financial support information, training opportunities and regulatory guidance within a single platform, the initiative seeks to create a collaborative environment capable of supporting growth across the shipbuilding value chain. The proposed framework will contribute towards strengthening domestic capabilities, improving ease of doing business and advancing the objectives of Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047 relating to shipbuilding, maritime industrial development and global competitiveness.

7.6. Training Ecosystem

Training Ecosystem Vision

The Training Ecosystem envisions the creation of a unified, cloud-based digital platform to regulate, monitor, and modernize maritime training, certification, and skill development. The objective is to bring all stakeholders—training institutes, faculty, trainees, regulators, and certifying authorities—onto a single integrated system, ensuring consistency, compliance, transparency, and quality enhancement across the maritime training landscape.

2. Key Features

The proposed ecosystem integrates seven critical modules, including Learning Management Systems (LMS), Faculty Development, Web-Based Simulators, AR/VR-based training, centralized attendance, certificate validation, and digital training & assessment records, into one cohesive digital framework. The platform enables real-time oversight, data-driven decision-making, and secure, transparent operational processes through advanced technology and centralized governance.

LMS-The LMS is a secure, DGS-compliant e-learning platform for standardized maritime training which ensures training integrity through real-time tracking, anti-cheating controls, and assessment access only after full course completion.

Web Based Simulation-A web-based simulator provides an immersive, interactive platform that replicates real-world maritime scenarios for effective learning and assessment.

Digital Tar-The Training and Assessment Record (TAR) Book is a mandatory document that records and verifies a seafarer's structured onboard training and practical competencies.

CAS 2.0-The Centralized Attendance System (CAS) uses facial biometrics to securely verify the presence of candidates, faculty, and administrators across Maritime Training Institutes.

OMCV-Online Marine Certificates Verification (OMCV) is a digital platform that enables secure upload, verification, and digital stamping of maritime certificates to ensure authenticity.

FDP-A Faculty Development Program (FDP) is a structured initiative designed to upgrade teaching skills, subject expertise, and professional competencies of faculty members through continuous learning and assessment.

AR/VR-Augmented Reality (AR) and Virtual Reality (VR) are immersive digital technologies designed to deliver realistic, interactive experiences for training, learning, and operational simulation. These technologies enhance engagement, situational awareness, and skill development.

Outcome of the Training Ecosystem RFP

The RFP aims to facilitate the selection of a **Master System Integrator** responsible for designing, developing, and implementing the integrated Training Ecosystem. The successful implementation is expected to enhance maritime training quality, enable standardized skilling and certification, improve regulatory oversight, and significantly increase overall system efficiency.

7.7. E-Pariksha

The Examination, Assessment, and Certification reforms for Certificates of Competency (CoC), covering both written and oral examinations, establish a fully digitized and integrated system that encompasses the entire examination lifecycle. The framework operates as an end-to-end digital process beginning with user registration, followed by eligibility assessment, seat booking, monitoring of misconduct, conduct of examinations, evaluation and re-evaluation, data storage, and management of the question bank and question paper generation. Each stage is structured within a unified digital platform, ensuring continuity, traceability, and standardization across all examination-related activities.

The system initiates with user registration, where candidates are onboarded into the digital platform. This is followed by eligibility assessment based on predefined regulatory criteria, ensuring that only qualified candidates proceed to the examination stage. Seat booking is managed digitally, enabling candidates to select examination slots in a structured and transparent manner. The framework also incorporates mechanisms to detect and address misconduct during the examination process, ensuring adherence to rules and maintaining the integrity of assessments.

The conduct of examinations is managed through digital and hybrid modes, including Computer-Based Testing and structured oral examinations. The evaluation process is also digitized, with provisions for re-evaluation to ensure fairness and accuracy in results. All examination data is stored in a centralized system, enabling secure record-keeping, data retrieval, and audit capabilities. The question bank and question paper generation

are integrated into the system, ensuring controlled access, standardization, and security in the preparation and distribution of examination content.

The objective of the reform is to create a secure, transparent, and fully digital examination system for the competency assessment and certification of seafarers. This objective is achieved through the implementation of technology-driven processes that eliminate manual inefficiencies and introduce consistent standards across all stages of examination and certification.

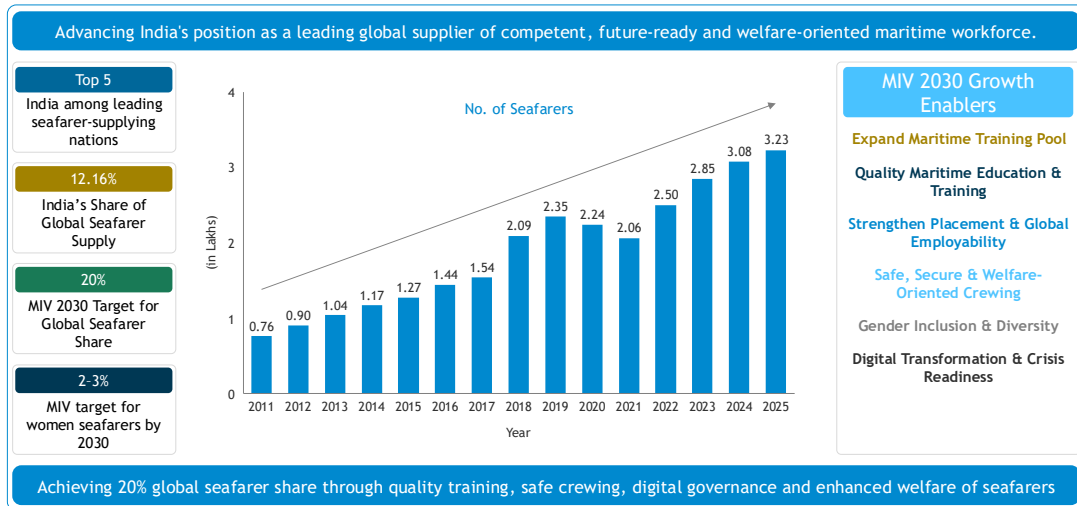
The scope of the system extends across the entire examination lifecycle, from initial registration to the issuance of certificates. It includes both written and oral examinations, conducted through hybrid or computer-based modes, ensuring flexibility while maintaining uniform standards. The system is designed to function across all Maritime Mercantile Departments (MMDs), ensuring nationwide consistency in examination practices.

Core features of the system include biometric verification for candidate authentication, CCTV surveillance, and online proctoring to monitor examination conduct. Question papers are encrypted to ensure confidentiality, while answer scripts are digitized through scanning for secure evaluation. The system also includes mechanisms for grievance redressal and feedback from candidates, ensuring that concerns are addressed within the same digital ecosystem.

The impact of these reforms is reflected in the creation of a uniform candidate experience across all examination centres, reducing regional variations in procedures. The integration of digital tools enhances examination integrity by minimizing the risk of malpractices, while also improving operational efficiency through automated processes. Transparency is strengthened through real-time monitoring, secure data handling, and traceable workflows, ensuring accountability at each stage of the examination and certification process.

8. Human Element

Charting India's Maritime Rise



18

India is growing stature as a leading maritime manpower nation and outlines the pathway to achieving the Maritime India Vision (MIV) 2030 target of increasing India's share in the global seafarer workforce from 12.16% to 20%.

Over the last decade and a half, the Indian seafaring workforce has witnessed sustained growth, increasing from approximately 76,000 seafarers in 2011 to 3.23 lakh seafarers in 2025. This growth reflects India's strong maritime education ecosystem, internationally recognized certification framework, and the increasing preference of global shipowners for Indian seafarers. India today ranks among the top five seafarer-supplying nations globally, contributing 12.16% of the global seafarer workforce.

However, achieving the MIV 2030 target of 20% global share requires a strategic and holistic approach extending beyond merely increasing the number of seafarers. The focus is on creating a competent, future-ready, safe and welfare-oriented maritime workforce.

The key growth enablers identified under the Maritime India Vision include:

- Expansion of the maritime training pool through increased training capacity and wider participation in maritime careers.
- Quality maritime education and training, aligned with international STCW standards and emerging industry requirements.
- Strengthening placement opportunities and global employability through improved industry linkages and enhanced career progression pathways.

- Safe, secure and welfare-oriented crewing, ensuring protection of seafarers' rights, welfare and social security.
- Promoting gender inclusion and diversity, with a target of increasing women seafarer participation to 2-3% by 2030.
- Digital transformation and crisis readiness, including adoption of digital governance platforms and enhanced support mechanisms for seafarers.

The overarching objective is to position India not only as a source of maritime manpower but as a global supplier of high-quality, technologically competent and welfare-protected maritime professionals capable of supporting future shipping trends, including decarbonisation, digitalisation and emerging maritime technologies. *India's maritime workforce strategy is focused on achieving 20% global seafarer share through quality training, enhanced employability, robust welfare measures, safe crewing practices and future-ready digital governance systems.*

8.1. Just Transition in Maritime

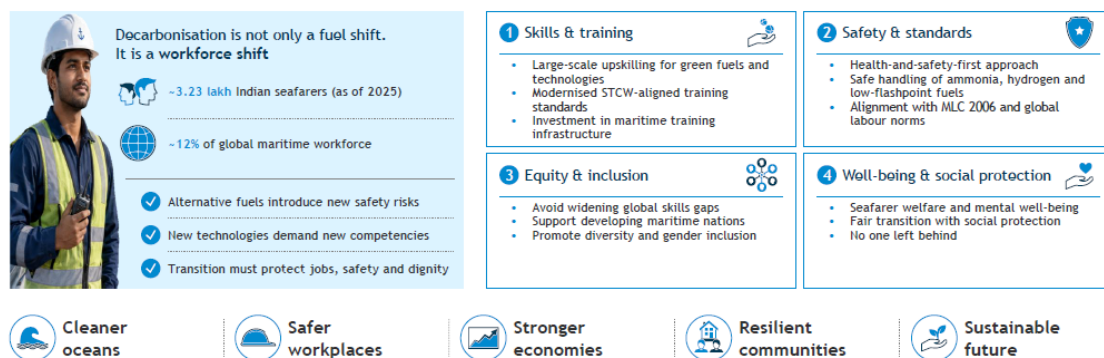
Just Transition in Maritime



Human element is of paramount importance in the maritime industry as human skills, judgement and welfare drive maritime safety.

Just transition: Putting people at the core of decarbonisation

A people-centred pathway for a safe, inclusive and resilient maritime transition



A green transition must also be a fair transition

The maritime sector is entering a period of significant transformation driven by global decarbonisation objectives, adoption of alternative fuels and the emergence of new operational technologies. While much of the international discourse on maritime transition focuses on vessel technology, fuel pathways and emission reduction targets, the success of this transition will ultimately depend on the readiness, competence and welfare of seafarers and other maritime professionals who are responsible for operating these systems safely and effectively. Human skills, judgment and welfare remain the foundation of maritime safety, and therefore the transition towards low-carbon shipping must be pursued as a people-centric transformation rather than merely a technological shift.

India currently contributes a significant share of the global seafaring workforce and is recognised as one of the leading maritime manpower-supplying nations. As the shipping industry moves towards alternative fuels such as ammonia, hydrogen, methanol and other emerging energy solutions, there will be a corresponding requirement for new competencies, specialised training and enhanced safety awareness among maritime personnel. Unlike conventional fuels, many emerging fuel types involve unique handling procedures, storage arrangements and operational risks that require additional knowledge and skills. The workforce transition therefore becomes an essential element of maritime decarbonisation, with training and continuous professional development serving as critical enablers for safe adoption of future technologies.

A key component of a just transition framework is the creation of a comprehensive skills and training ecosystem capable of preparing maritime personnel for the evolving requirements of green shipping. Existing training standards will need to be continuously updated to reflect emerging industry practices, technological developments and international regulatory requirements. The introduction of specialised training programmes, simulator-based learning environments and updated competency standards will be necessary to equip seafarers with the skills required to operate vessels using alternative fuels and advanced digital systems. Continued investment in maritime training infrastructure, faculty development and research capabilities will therefore play an important role in ensuring that India remains a leading provider of highly skilled maritime professionals during the transition period.

Safety considerations assume even greater importance as the industry adopts new technologies and fuel systems. Alternative fuels introduce operational characteristics and hazards that differ from traditional marine fuels and therefore require enhanced risk management measures. A successful transition will require a proactive safety-first approach supported by robust training, updated operational procedures, specialised emergency response capabilities and strengthening of international safety standards. Alignment with the Maritime Labour Convention, 2006 and other international instruments will remain essential to ensure that technological advancement is accompanied by continued protection of seafarer rights, living conditions and occupational safety standards.

The transition must also be inclusive and equitable. There is a risk that rapid technological change may create disparities in access to skills, employment opportunities and training resources across different segments of the maritime workforce and among maritime nations. A just transition framework therefore seeks to ensure that the benefits of decarbonisation are widely shared and that no group is disproportionately disadvantaged during the transition process. Particular emphasis is required on supporting developing maritime nations, expanding access to training opportunities, promoting diversity within the maritime workforce and encouraging greater participation of women and underrepresented groups in maritime careers. Such measures will help create a resilient and inclusive maritime ecosystem capable of adapting to long-term industry transformation.

Equally important is the need to strengthen social protection and welfare mechanisms for maritime personnel. The transition towards greener shipping should not be achieved at the cost of workforce well-being. Seafarers will be required to operate increasingly sophisticated equipment while simultaneously adapting to new operational practices and regulatory obligations. Enhanced welfare measures, mental health support systems, fair employment practices and adequate social protection mechanisms will therefore be critical components of the transition process. Protecting livelihoods and ensuring workforce resilience will help maintain confidence among maritime professionals and support long-term sustainability of the sector.

A people-centred approach to maritime decarbonisation provides benefits extending beyond environmental outcomes alone. Investment in skills, safety, inclusion and welfare contributes to cleaner oceans through adoption of sustainable technologies, safer workplaces through enhanced competency and risk management, stronger economies through creation of high-skilled employment opportunities and resilient communities through long-term workforce development. By placing people at the centre of maritime transformation, the sector can ensure that environmental objectives are achieved while simultaneously strengthening safety, competitiveness and social sustainability. The concept of a just transition therefore recognises that successful decarbonisation is not solely about reducing emissions but also about creating a fair, inclusive and future-ready maritime ecosystem capable of supporting sustainable growth for generations to come.

8.2. Abandonment Scenario in India

Abandonment Scenario in India



SUMMARY AS ON DATE		Vessels (Nos.)	Seafarers (Nos.)	Key Challenges											
16.07.2026				- Large number of fraudulent and illegal agents are operating, and this leads to illicit extraction of money from seafarers, illegal deployment on vessels, fake CDC endorsement etc. - Many agents often disappear after receiving the money - Many seafarers are often left abandoned. India tops the nations with the highest number of seafarer abandonments.											
Cases Resolved (Seafarers Repatriated)	01.01.25 to 31.12.25	108	988												
	01.01.26 to till date	56	473												
Active Cases Details		Vessels (Nos.)	Seafarers (Nos.)	Stage 1		Stage 2		Stage 3		Stage 4		Stage 5		Stage 6	
				Vls	Seafarer	Vls	Seafarer	Vls	Seafarer	Vls	Seafarer	Vls	Seafarer	Vls	Seafarer
Cat. 1: PBI Valid		20	159	0	0	0	0	1	21	2	3	11	65	6	70
Cat. 2: PBI Expired		15	139	0	0	0	0	1	3	1	26	7	68	6	42
Cat. 3: Disputed		25	169	0	0	0	0	0	0	0	0	18	136	7	33
Cat. 4: Arrest/ Jail/ Detention		20	45	1	5	0	0	2	3	6	6	11	31	0	0
TOTAL		80	512	1	5	0	0	4	27	9	35	47	300	19	145

Seafarer abandonment continues to remain one of the most significant welfare and regulatory challenges facing the global maritime industry. Cases of abandonment arise when shipowners fail to fulfil their obligations towards crew members, including payment of wages, provision of essential supplies, repatriation arrangements and

maintenance of safe living conditions on board vessels. Such situations often leave seafarers stranded for extended periods without financial resources, adequate support systems or means of returning to their home countries. The issue has become increasingly complex due to the involvement of multiple jurisdictions, distressed shipowners, vessel detentions, legal disputes and the activities of unauthorised recruitment and placement agents.

India has witnessed a substantial number of abandonment-related cases involving both Indian seafarers and vessels connected to Indian operations. A significant share of these cases involve fraudulent and illegal recruitment agents who collect money from aspiring seafarers through unauthorised channels and subsequently arrange deployment on vessels without proper contractual protections or verification of shipowner credentials. In many instances, such agents disappear after receiving payments, leaving seafarers exposed to exploitation and increased vulnerability. The problem is compounded by the issuance of fraudulent documentation and misleading employment arrangements that make it difficult for seafarers to verify the authenticity of operators and recruitment agencies before joining a vessel.

The growing incidence of seafarer abandonment highlights the need for stronger oversight of recruitment and placement services, enhanced monitoring of vessel compliance and improved mechanisms for early identification of potential distress situations. Many abandonment cases emerge gradually through delays in payment of wages, deterioration of vessel maintenance standards, depletion of onboard supplies or prolonged detention of vessels in ports. Timely intervention by maritime authorities, port administrations and welfare organisations is therefore critical to prevent such situations from escalating into full abandonment cases. Strengthening information-sharing frameworks, improving reporting mechanisms and enhancing coordination between domestic and international stakeholders can significantly improve the effectiveness of response measures.

A key challenge in abandonment cases arises from the diverse legal and operational circumstances under which vessels become distressed. Cases may involve vessels with valid documentation but financially distressed owners, vessels with expired certifications, vessels involved in commercial disputes, or vessels under arrest and detention proceedings. Each category presents unique regulatory and welfare challenges requiring coordinated action by maritime administrations, port authorities, insurers, shipowners, flag States and labour welfare organisations. Effective management of abandonment cases therefore requires not only welfare support for affected crew members but also structured mechanisms for resolution of legal, operational and financial issues associated with the vessel.

The protection of seafarers affected by abandonment remains a central objective of international maritime labour standards, particularly under the Maritime Labour Convention, 2006. The Convention places obligations on shipowners and flag States to ensure repatriation, financial security and welfare protection of seafarers serving on board vessels. Strengthening implementation of these protections through domestic

legislation, improved enforcement and enhanced monitoring mechanisms is essential for safeguarding the rights and welfare of maritime personnel. Recent legislative reforms under the Merchant Shipping Act, 2025 further strengthen the Government's ability to intervene in abandonment situations by providing statutory mechanisms for protection of seafarers, including arrangements relating to crew replacement and recovery of associated costs from responsible shipowners.

Addressing the challenge of seafarer abandonment requires a multi-dimensional approach encompassing stronger regulation of recruitment agencies, improved monitoring of vessel operators, enhanced international cooperation and effective welfare support frameworks. Greater awareness among seafarers regarding authorised recruitment channels, stronger enforcement against fraudulent agents and continued alignment with international labour standards will be critical in reducing the incidence of abandonment cases. Such measures will contribute towards strengthening confidence in the maritime profession, protecting the rights and dignity of seafarers and ensuring that India's growing maritime workforce continues to operate within a safe, fair and internationally compliant employment environment.

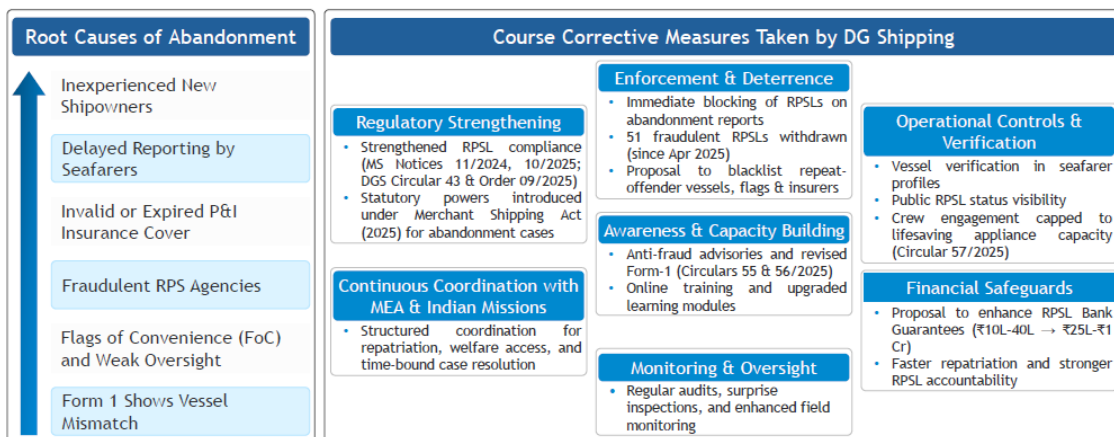
8.3. Key interventions taken by DG Shipping



Key interventions taken by DG Shipping

DG Shipping is on a mission mode to address the issue of large number of abandonment of seafarers.

As on 16th July 2026, there are **80** Vessels with **512** seafarers abandoned/ arrested.
Repatriation Summary (Jan-June 2026) **473** Seafarers Repatriated | **56** Vessels



The issue of seafarer abandonment has emerged as a priority area for the Directorate General of Shipping due to the increasing number of cases involving distressed vessels, abandoned crews and fraudulent recruitment practices. As of July 2026, a significant number of vessels and seafarers continue to require regulatory intervention, monitoring and welfare assistance, highlighting the need for a coordinated and multi-pronged response. DG Shipping has therefore adopted a mission-mode approach focused not only on repatriation and welfare support but also on addressing the systemic causes that contribute to abandonment cases.

Analysis of abandonment cases indicates that several structural challenges continue to drive the problem. A considerable proportion of cases involve inexperienced shipowners operating vessels with weak financial and operational capability. Delayed reporting by seafarers often allows problems to escalate before authorities are able to intervene. In several instances, vessels are found operating without valid or adequate Protection and Indemnity (P&I) insurance cover, thereby limiting financial security available for repatriation and crew welfare obligations. Fraudulent Recruitment and Placement Service Licensees (RPSLs) and unauthorised recruitment agencies have also contributed to cases of illegal deployment, inadequate contractual protections and misinformation provided to seafarers. In addition, certain vessels operating under flags of convenience and weak oversight regimes present increased risks relating to compliance, welfare protection and enforcement of maritime labour standards. Collectively, these factors increase the vulnerability of seafarers and contribute to the occurrence of abandonment situations requiring intervention by maritime authorities.

To address these challenges, DG Shipping has undertaken a series of regulatory strengthening measures. Various circulars, notices and administrative directions have been issued to tighten oversight of recruitment and placement practices, improve verification mechanisms and strengthen compliance monitoring. Further support has been provided through statutory provisions introduced under the Merchant Shipping Act, 2025, which establish a stronger legal framework for dealing with abandonment cases and protecting affected seafarers. These measures are intended to create a more robust regulatory environment capable of identifying risks at an early stage and facilitating timely intervention where necessary.

Enforcement and deterrence have formed another key pillar of DG Shipping's response. Immediate action has been taken against recruitment agencies linked to abandonment complaints and fraudulent activities, including suspension and withdrawal of licences. Enhanced scrutiny of repeat offenders and stronger enforcement measures have been proposed to discourage non-compliance and improve accountability across the maritime recruitment ecosystem. The objective is to create a strong deterrent against practices that expose seafarers to exploitation and increase the likelihood of abandonment situations.

Recognising that abandonment cases frequently involve foreign jurisdictions, DG Shipping has strengthened coordination mechanisms with the Ministry of External Affairs and Indian Missions abroad. Structured engagement with diplomatic missions has facilitated repatriation efforts, welfare assistance, communication with local authorities and time-bound resolution of cases involving Indian seafarers serving overseas. This coordinated approach has enabled more effective management of complex cases where assistance is required across multiple jurisdictions and regulatory authorities.

Operational controls and verification mechanisms have also been enhanced to reduce opportunities for fraudulent deployment and improve transparency. Measures have been introduced to strengthen vessel verification processes and improve visibility regarding the status of licensed recruitment agencies. Additional safeguards have been

incorporated to ensure that crew engagement processes are aligned with vessel safety and operational requirements. These interventions are expected to improve compliance assurance and provide greater confidence to seafarers seeking employment opportunities through authorised channels.

DG Shipping has also placed significant emphasis on awareness generation and capacity building. Revised documentation requirements, awareness campaigns and training initiatives have been introduced to improve understanding among seafarers regarding recruitment procedures, contractual safeguards, complaint mechanisms and welfare protections. Strengthening awareness at the seafarer level is considered essential for reducing vulnerability to fraudulent operators and ensuring that potential risks are identified and reported at an early stage.

Continuous monitoring and oversight remain central to the overall strategy. Regular audits, inspections and field-level monitoring activities are being undertaken to identify emerging risks and ensure compliance with regulatory requirements. Alongside these efforts, proposals have been developed to strengthen financial safeguards available within the recruitment ecosystem, including enhancement of financial security mechanisms and greater accountability of recruitment agencies. These measures aim to ensure availability of resources for repatriation, welfare support and timely resolution of abandonment cases while reinforcing compliance across the sector.

The combined effect of these interventions is expected to create a stronger preventive framework capable of addressing the root causes of abandonment while simultaneously improving response mechanisms when cases arise. Through regulatory reforms, stronger enforcement, international coordination, enhanced oversight and welfare-focused interventions, DG Shipping is working towards reducing the incidence of abandonment cases and strengthening protection available to Indian seafarers operating across the global maritime industry.

Challenges of life at sea lead to many death cases (including natural death) as well as missing cases



☠️ Death Cases											
	2012 - 17	2018	2019	2020	2021	2022	2023	2024	2025	2026	TOTAL
Closed	0	0	0	0	0	5	3	3	0	0	11
Pending	5	1	3	6	6	4	3	2	12	25	67
Settled	1	6	6	33	61	48	58	49	55	13	330
TOTAL	6	7	9	39	67	57	64	54	67	38	408
❓ Missing Cases											
	2015 - 17	2018	2019	2020	2021	2022	2023	2024	2025	2026	TOTAL
Closed	0	0	1	0	1	0	0	6	1	0	9
Desertion	1	2	7	2	4	2	2	5	0	0	25
Pending	0	6	0	6	2	11	13	4	4	9	55
Settled	18	6	10	6	10	16	9	15	11	2	103
TOTAL	19	14	18	14	17	29	24	30	16	11	192

Closed

Closed from ship-owners /
P&I without compensations

Pending

Under progress and pending

Settled

Case settled by ship-owners /
P&I with compensations

Life at sea continues to expose seafarers to unique occupational, environmental and operational risks that are significantly different from those experienced in shore-based professions. Long periods away from home, demanding work schedules, exposure to harsh weather conditions, isolation, fatigue, medical emergencies and limited access to specialised healthcare facilities can increase vulnerability to accidents, illnesses and other welfare-related incidents. While maritime safety standards and regulatory oversight have improved substantially over the years, fatalities and missing seafarer cases continue to be reported across the global shipping industry, requiring sustained attention from regulators, shipowners and welfare organisations.

Analysis of reported cases indicates that seafarer deaths arise from a variety of causes including natural medical conditions, accidents on board, occupational incidents, health emergencies and other operational circumstances. The nature of maritime employment often means that immediate access to advanced medical care may not always be readily available, particularly during long international voyages. Ageing crew profiles in certain segments, increasing operational demands and extended sea service periods further underline the importance of preventive healthcare, medical screening and onboard welfare measures. Effective implementation of health management systems, improved medical preparedness and timely telemedical assistance have therefore become important components of modern maritime safety management.

Cases involving missing seafarers present an additional challenge due to the operational complexity associated with investigations conducted across different jurisdictions and maritime environments. Such cases may arise from accidents, adverse weather conditions, operational incidents or other circumstances requiring extensive search, investigation and verification efforts. Resolution of these cases often involves cooperation among flag States, coastal States, shipowners, insurers, maritime administrations and law enforcement authorities. Given the complexity of maritime operations and evidentiary requirements, investigations and settlement processes associated with missing seafarer cases can often take considerable time before final closure is achieved.

The available case trends indicate that while a significant number of cases have been resolved and compensation mechanisms activated, several matters remain under investigation or pending completion. Resolution typically involves coordination among shipowners, Protection and Indemnity (P&I) insurers, maritime administrations and affected families to determine liability, verify circumstances and process applicable welfare and compensation claims. The role of financial security mechanisms provided under international maritime conventions has become increasingly important in ensuring timely support to affected families and facilitating settlement of claims arising from maritime casualties.

Recognising these challenges, international instruments such as the Maritime Labour Convention, 2006, the STCW Convention and various IMO safety regulations place considerable emphasis on seafarer welfare, occupational safety and emergency preparedness. Shipowners are required to maintain safe working environments,

implement safety management systems, provide adequate medical facilities and ensure compliance with internationally prescribed welfare standards. Continuous improvements in vessel design, onboard monitoring systems, emergency response procedures and crew training have contributed towards reducing risks; however, the inherently demanding nature of maritime operations necessitates ongoing vigilance and continuous improvement.

The growing focus on seafarer well-being has also highlighted the importance of mental health, fatigue management and social support systems. Extended contracts, social isolation and operational pressures can have adverse impacts on the overall welfare of seafarers, making preventive welfare measures an integral part of maritime safety. Strengthening welfare frameworks, enhancing access to counselling and support services, improving onboard living conditions and promoting a safety culture across the industry can play a significant role in reducing incidents and improving quality of life at sea.

Continued collaboration among maritime administrations, shipowners, welfare organisations, insurers and international bodies remains essential for addressing fatalities and missing seafarer cases effectively. Strengthening reporting mechanisms, improving data collection, enhancing accident investigation capabilities and ensuring timely settlement of claims can help provide greater protection to seafarers and their families. As India continues to expand its role as a major maritime manpower-supplying nation, sustained focus on health, safety, welfare and social protection measures will remain critical in safeguarding the interests of Indian seafarers serving across the global shipping industry.

8.4. Towards Stronger social security for seafarers

Towards Stronger Social Security for Seafarers



Seamen's Provident Fund Organisation	
Long-Term Financial Security • SPFO manages provident fund contributions made by both seafarers and employers, which are accumulated and paid out as benefits upon retirement, completion of service, or in cases of disability or death. • Improves the quality of life of seafarers by providing financial security, social protection, and long-term stability throughout their working life and after retirement. • Vision: To Provide for an institution of a Provident Fund to the Seamen as an old age retirement benefit to them and to their family members in the event of death.	

The maritime profession is characterised by unique employment patterns, prolonged periods at sea, international mobility and exposure to occupational risks that differ

significantly from those faced in shore-based sectors. While seafarers play a critical role in facilitating global trade and ensuring uninterrupted movement of goods, their access to long-term social security and retirement benefits has historically remained a matter of concern across many maritime jurisdictions. Strengthening social protection mechanisms is therefore an important component of seafarer welfare and forms an integral part of the broader objective of creating a safe, secure and welfare-oriented maritime workforce.

The Seamen's Provident Fund Organisation (SPFO) serves as a dedicated institutional mechanism for providing long-term financial security to seafarers and their families. The organisation administers provident fund contributions made jointly by seafarers and employers during the course of employment. These contributions are accumulated over time and become available as financial benefits upon retirement, completion of service, disability or other eligible circumstances prescribed under the applicable framework. By creating a structured savings mechanism linked to maritime employment, the SPFO contributes towards income security and financial resilience throughout a seafarer's professional life.

The importance of social security within the maritime sector extends beyond retirement planning alone. Seafarers frequently spend extended periods away from their families and often face uncertainties arising from fluctuating employment cycles, evolving industry conditions and occupational risks associated with maritime operations. Access to a stable social protection mechanism therefore plays an important role in improving overall quality of life and providing financial confidence during active service as well as after retirement. A structured provident fund framework helps create a long-term savings culture while ensuring that maritime professionals have access to financial support at critical stages of their lives.

The SPFO framework also carries significant welfare implications for the families of seafarers. Maritime employment frequently involves service in international waters and exposure to circumstances beyond the control of the individual seafarer. In situations involving disability, permanent incapacity or death, the availability of accumulated provident fund benefits can provide important financial assistance to dependents and family members. Such support mechanisms strengthen social protection and help mitigate the economic impact of unforeseen events affecting maritime personnel.

The broader vision underpinning the provident fund framework is the establishment of a robust social security system that supports seafarers throughout their professional and post-retirement years. In addition to providing financial benefits, the framework contributes towards enhancing the attractiveness of maritime careers by offering greater economic security and welfare assurance. Strong social protection mechanisms also support workforce retention by improving confidence among maritime professionals and reinforcing the perception of shipping as a stable and sustainable long-term career option.

As India seeks to expand its position as a leading provider of maritime manpower and increase its share of the global seafaring workforce, strengthening welfare and social security frameworks remains a key policy priority. Measures aimed at enhancing financial security, improving retirement benefits and extending social protection are consistent with the objectives of creating a future-ready maritime workforce supported by strong welfare institutions. The continued evolution of the SPFO framework therefore represents an important step towards ensuring that seafarers not only contribute to maritime growth during their working years but also benefit from long-term economic security and welfare protection throughout their lives and beyond.

8.5. Towards stronger welfare for seafarers

Towards Stronger Welfare for Seafarers



Seafarer Welfare Fund Society (SWFS)

Welfare & Immediate Support

- The **SWFS** welfare schemes are designed to support seafarers and their families through initiatives focused on health, education, welfare infrastructure, and various financial assistance measures.
- Welfare Schemes:** A total of **12** ongoing schemes covering active seafarers, retired personnel, women seafarers, families of deceased seafarers, and children of seafarers
- Infrastructure Projects under welfare initiatives:** SWBAT - ₹ 90 Cr/-
- Insurance Coverage** for seafarers by supporting insurance premium payments through a structured and equitable system.

The welfare of seafarers extends beyond employment conditions and occupational safety and encompasses the broader objective of ensuring timely support, financial assistance and welfare protection during various stages of a seafarer's life and career. Given the unique nature of maritime employment, seafarers and their families often require support mechanisms that address health emergencies, educational needs, welfare-related contingencies and financial hardships that may arise during active service or after retirement. Strengthening welfare support systems is therefore an essential component of a resilient maritime ecosystem and contributes directly to improving the quality of life of maritime professionals.

The Seafarer Welfare Fund Society (SWFS) functions as a dedicated welfare institution focused on providing immediate assistance and welfare support to seafarers and their families. Unlike long-term social security mechanisms that primarily address retirement and pension-related needs, the SWFS is designed to provide direct welfare interventions covering health, education, welfare infrastructure and various forms of financial assistance. Through targeted welfare programmes, the organisation seeks to support serving seafarers, retired maritime personnel, women seafarers, dependents of deceased seafarers and children of maritime professionals. The welfare framework

reflects the recognition that effective maritime development requires not only skilled manpower but also strong support systems capable of addressing the social and welfare needs of those employed in the sector.

The range of welfare schemes administered under the SWFS framework is intended to provide comprehensive support across different stages of a seafarer's life cycle. Assistance is extended through multiple schemes covering education support, welfare grants, family assistance measures and other welfare-oriented interventions aimed at improving the socio-economic well-being of beneficiaries. Such support mechanisms help reduce financial vulnerability and provide an additional layer of protection for seafarers and their families against unforeseen circumstances. By addressing welfare requirements beyond traditional employment-related benefits, the SWFS contributes towards strengthening social resilience within the maritime community.

A significant component of the welfare programme is the development of welfare infrastructure aimed at enhancing the quality and reach of services available to seafarers. Investments in welfare-related infrastructure enable better delivery of support services, improve accessibility and strengthen institutional capacity for addressing welfare concerns. Such infrastructure plays an important role in ensuring that welfare initiatives are not limited to financial assistance alone but are supported by sustainable systems and facilities capable of serving the long-term needs of maritime stakeholders.

The welfare framework also recognises the importance of insurance and financial risk mitigation as essential elements of seafarer protection. Maritime employment often involves exposure to occupational risks, health contingencies and uncertainties associated with international deployment. Support for insurance coverage through structured assistance mechanisms helps ensure that seafarers and their families have access to financial protection when required. Strengthening insurance accessibility improves overall welfare outcomes and complements existing social security and provident fund arrangements available within the maritime sector.

The continued strengthening of the Seafarer Welfare Fund Society aligns with broader national objectives of creating a welfare-oriented and future-ready maritime workforce. As India seeks to expand its global presence as a leading provider of maritime manpower, welfare and social protection measures assume increasing importance in attracting, retaining and supporting skilled professionals. Comprehensive welfare mechanisms help create confidence among seafarers, improve career attractiveness and ensure that maritime growth is accompanied by adequate social support systems. The SWFS framework therefore represents an important pillar of India's maritime welfare architecture by providing timely assistance, targeted support and enhanced welfare protection for seafarers and their families throughout their professional and personal lives.

8.6. Steps are being taken by the DG Shipping for the welfare of seafarers

Steps are being taken by the DG Shipping, Government of India for the welfare of seafarers



The Seafarers' Welfare Fund Society (SWFS) is an autonomous body under the administrative control of the MoPSW, dedicated to the welfare of Indian seafarers and their families. It administers welfare schemes, financial assistance, and gratuity funds to provide social security and support to active and retired seafarers.

Schemes for Active Seafarers; Schemes for Specific Category of Seafarers; Schemes for Family of Seafarers; Schemes for Deceased Seafarer; Medical Assistance/Insurance

Survivors' Benefit Scheme (SBS): Financial assistance to the family of a deceased Indian seafarer	₹ 6,00,000 (w.e.f. 01.01.2026)	Death on Board Benefit Scheme (DBBS): Support in cases of death or presumed death occurring on board	₹ 2,00,000 (w.e.f. 01.01.2026)	War Like/ High-Risk Area Scheme: Financial Assistance for death or permanent disability in High-Risk conflict zones	₹ 10,00,000
Invalidity Benefit Scheme (IBS): Support for Indian seafarers declared permanently unfit for the sea	₹ 6,00,000 (w.e.f. 01.01.2026)	Old Age Benefit Scheme (OABS): Assistance for seafarers who attain the age of 65 years on/after 01.01.2019 and age 75 on/after 01.01.2026	₹ 50,000 (Age 65) ₹ 1,00,000 (Age 75)	CoC Career Progression (Rating → Officer): One-time assistance after successful issue of Indian CoC by DG Shipping.	₹ 2,00,000
Maternity Benefits Scheme (MBS): Financial assistance for Indian women seafarers during maternity (Max: 2 deliveries)	₹ 50,000 Per delivery (w.e.f. 01.01.2026)	Ex-Gratia Support Benefit Scheme (ESBS): Additional financial aid for specific cases of abandoned / stranded seafarers.	₹ 20,000/m (Max: 12 months) (w.e.f. 01.01.2026)	Medical & Term Insurance Premium: Assistance - Reimbursement of 50% premium for Indian CDC holders meeting sea-service criteria	Up to ₹ 5,000
Family Benefit Welfare Scheme (FBWS): Provides support to dependent families of Indian Seafarers	₹ 1,00,000 (Pre-Sea Training Completion) ₹ 50,000 (Postgraduate Degree Completion)	Award to Meritorious Child of Seafarers (AMCS): Educational incentives for children of Indian Seafarers	₹ 25,000 (w.e.f. 01.01.2026)	Medical Support (Critical / Terminal Illness): One-time support; govt./recognised hospital certification	₹ 2,00,000

DGMA has taken multiple steps for the welfare of seafarers, including provisioning of welfare schemes, development of seafarers welfare infrastructure, and other welfare initiatives. 122

The Seafarers' Welfare Fund Society (SWFS) serves as the principal welfare institution dedicated to supporting Indian seafarers and their families through a wide range of social welfare, financial assistance and support programmes. Functioning under the administrative control of the Ministry of Ports, Shipping and Waterways, the Society has been established to address welfare requirements that extend beyond employment-related benefits and to provide assistance during circumstances involving illness, disability, retirement, family hardship, death or other welfare contingencies. Through a structured framework of welfare schemes and financial assistance programmes, SWFS contributes towards strengthening social security and enhancing the overall well-being of the maritime workforce.

The welfare framework administered by the Society encompasses multiple schemes targeted at different categories of beneficiaries, including active seafarers, retired maritime personnel, women seafarers, children of seafarers and families of deceased seafarers. This broad coverage recognises the diverse welfare needs that arise throughout the lifecycle of maritime employment and ensures that support mechanisms remain accessible to seafarers at various stages of their professional and personal lives. By adopting a comprehensive and inclusive approach, the Society seeks to provide meaningful assistance to beneficiaries facing different forms of financial, medical and social challenges.

A key focus area of the welfare framework is the provision of financial assistance to families affected by the death of a seafarer. Special benefit schemes have been instituted to provide support in circumstances involving death on board, presumed death at sea and other casualty-related situations. Such measures are intended to

provide immediate economic assistance to dependents and reduce financial distress for affected families. Similarly, dedicated schemes support seafarers who suffer permanent disability or are declared medically unfit for sea service, thereby ensuring that individuals whose maritime careers are curtailed due to health-related reasons receive an additional layer of financial protection.

The welfare architecture also provides support to elderly maritime professionals through old-age assistance programmes aimed at enhancing financial security after retirement. Given the unique employment characteristics of the maritime profession and the absence of continuous shore-based employment opportunities for many seafarers during later stages of life, retirement-related support remains an important component of welfare policy. Such assistance complements other social security mechanisms and contributes towards improving the long-term economic well-being of retired seafarers.

Recognising the increasing participation of women within the maritime sector, the welfare framework includes dedicated support measures tailored to their specific requirements. Assistance mechanisms have been developed to provide support during maternity and other welfare-related contingencies, thereby promoting greater inclusivity within the maritime profession. Additional welfare measures are also extended to stranded and abandoned seafarers who may require urgent assistance due to unforeseen operational or employment-related challenges. These interventions reinforce the principle that welfare protection should remain available whenever seafarers face circumstances beyond their control.

Education support forms another important pillar of the welfare framework. Financial assistance and scholarship-type benefits are extended to children of seafarers in recognition of the contribution made by maritime professionals to the national economy and global trade. Such initiatives help strengthen family welfare, encourage educational advancement and contribute towards improving long-term socio-economic outcomes for seafaring families. Measures supporting career progression and professional development have also been introduced to encourage skill enhancement and facilitate upward mobility within the maritime profession.

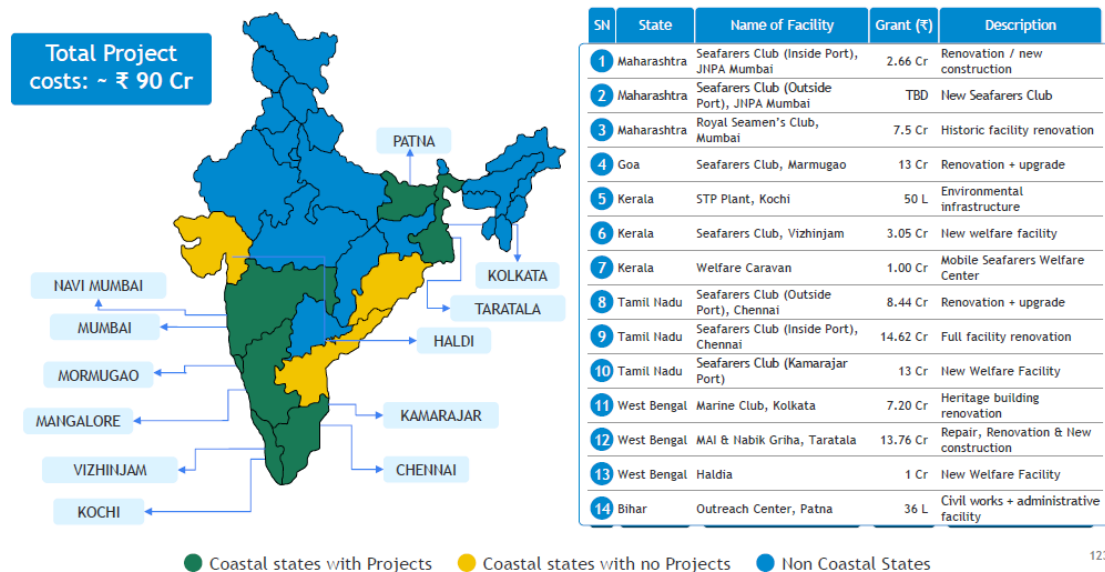
Healthcare and insurance assistance constitute a further area of intervention under the SWFS framework. Medical emergencies, critical illnesses and healthcare-related expenses can impose significant financial burdens on seafarers and their families. To address these concerns, various assistance mechanisms have been introduced to support medical treatment, hospitalisation and insurance premium payments. These provisions complement existing employer obligations and social protection arrangements while enhancing the overall welfare and financial resilience of maritime personnel.

The continued expansion and strengthening of welfare measures through the Seafarers' Welfare Fund Society reflects the Government's commitment towards creating a welfare-oriented maritime ecosystem. As India seeks to enhance its global standing as a leading maritime manpower nation, comprehensive welfare support becomes

increasingly important for attracting, retaining and protecting skilled maritime professionals. By addressing financial security, healthcare, education, family welfare and emergency assistance requirements through a structured institutional framework, the SWFS contributes significantly towards improving the quality of life of Indian seafarers and ensuring that maritime growth is accompanied by strong social and welfare safeguards.

8.7. Seafarer welfare infrastructure - SWBAT

Seafarer Welfare Infrastructure - SWBAT



The Seafarers Welfare Board and Trust (SWBAT) has undertaken a comprehensive programme for creation, modernisation and expansion of welfare infrastructure for seafarers across India. Recognising that the welfare requirements of seafarers extend beyond financial assistance and social security measures, the programme focuses on developing dedicated welfare facilities that can provide accommodation, recreation, support services, outreach activities and welfare assistance to maritime personnel and their families. With projects spread across major maritime locations and strategic coastal centres, the initiative seeks to strengthen the institutional infrastructure available to seafarers and improve access to welfare services throughout the country.

The infrastructure development programme represents a significant long-term investment in seafarer welfare and has been conceptualised to support the growing size and geographical distribution of India's maritime workforce. Welfare infrastructure projects have been planned and implemented across major maritime hubs including Mumbai, Mormugao, Kochi, Vizhinjam, Chennai, Kamarajar Port, Kolkata, Haldia and Taratala, among others. By establishing and upgrading welfare facilities in locations where seafarers frequently embark, disembark or access maritime services, the programme seeks to enhance convenience, improve service delivery and create dedicated spaces tailored to the needs of maritime professionals.

A significant component of the programme involves renovation, restoration and modernisation of existing seafarers' clubs and welfare establishments. Many of these facilities have historically served as important centres for seafarer welfare, providing accommodation, recreational amenities and support services. The ongoing infrastructure initiative focuses on upgrading these facilities to contemporary standards through modernisation of buildings, improvement of available services and enhancement of overall user experience. In several locations, new welfare infrastructure is also being developed to address increasing demand and support future growth in maritime activity.

The programme also incorporates region-specific projects designed to address local welfare and operational requirements. In addition to seafarers' clubs and welfare centres, investments have been made in supporting infrastructure and outreach initiatives intended to improve accessibility of welfare services. Mobile welfare facilities and outreach centres have been included to ensure that welfare support can be extended beyond traditional port locations and reach a wider segment of the seafaring community. Such initiatives contribute towards creating a more inclusive welfare ecosystem capable of supporting seafarers regardless of their location or stage of service.

Environmental and sustainability considerations have also been integrated within specific infrastructure projects. Investments in supporting facilities and associated infrastructure improvements seek to ensure that welfare centres are developed in a sustainable and operationally efficient manner. The emphasis on modern infrastructure complements broader efforts towards improving living conditions, promoting welfare and strengthening service delivery standards within the maritime sector.

The creation of a nationwide network of welfare facilities also supports broader objectives relating to seafarer welfare, community development and workforce sustainability. Dedicated welfare infrastructure provides a platform for delivery of educational programmes, counselling services, welfare assistance, skill development initiatives and community engagement activities. These facilities help strengthen social support systems available to seafarers and their families while creating opportunities for enhanced interaction between maritime stakeholders and welfare institutions.

The SWBAT infrastructure initiative forms an important pillar of India's maritime welfare framework and complements other welfare measures implemented through the Seafarers' Welfare Fund Society, social security institutions and regulatory initiatives. By investing in permanent welfare infrastructure across major maritime centres, the programme aims to improve quality of life for seafarers, strengthen welfare delivery mechanisms and ensure that India's growing maritime workforce is supported by modern, accessible and sustainable welfare facilities. The initiative reflects a long-term commitment to creating a welfare-oriented maritime ecosystem in which seafarers and their families have access to the institutional support necessary for their well-being and professional development.

8.8. Ensuring zero tolerance for corruption in crewing

Ensuring Zero Tolerance for Corruption in Crewing



- » DG Shipping upholds a strict Zero Tolerance policy against corruption, fraud, and unethical practices in all operations.
- » Robust systems are implemented to ensure transparency, accountability, and integrity in recruitment and welfare processes:
 - Strict monitoring of RPSL agencies
 - Digital verification mechanisms
 - Clear compliance guidelines
- » Awareness initiatives conducted to educate stakeholders on:
 - Identifying corrupt and fraudulent practices
 - Avoiding illegal payments and middlemen
 - Rights and protections of seafarers
 - Reporting mechanisms and grievance redressal
- » Strong grievance redressal framework:
 - 24x7 support channels
 - Time-bound resolution of complaints
 - Whistleblower protection measures
- » Continuous audits and inspections to:
 - Detect irregularities
 - Enforce compliance standards
 - Strengthen systemic quality assurance
- » DG Shipping ensures that quality and integrity go hand-in-hand, creating a corruption-free ecosystem for seafarers' welfare.






The Directorate General of Shipping has adopted a policy of zero tolerance towards corruption, fraud and unethical practices within the maritime recruitment and crewing ecosystem. The integrity of the recruitment process has a direct bearing on seafarer welfare, safety and employment opportunities, and therefore ensuring transparency and accountability across recruitment channels has emerged as a key regulatory priority. Fraudulent recruitment practices not only result in financial losses for seafarers but also expose them to risks such as illegal deployment, non-compliant employment contracts, abandonment and exploitation. In response, DG Shipping has undertaken a series of institutional, technological and awareness-based interventions aimed at strengthening governance within the crewing sector.

A central component of this initiative has been the strengthening of oversight mechanisms applicable to Recruitment and Placement Service Licensees (RPSLs). Regulatory supervision has been enhanced through stricter monitoring, periodic inspections and improved compliance verification processes. Digital verification mechanisms have been introduced to promote transparency and facilitate authentication of recruitment-related information. These reforms enable seafarers to verify the legitimacy of recruitment agencies and reduce the possibility of engagement through unauthorised intermediaries. Enhanced compliance requirements and monitoring systems also assist the maritime administration in identifying irregularities at an early stage and taking corrective action where necessary.

Recognising that prevention is as important as enforcement, DG Shipping has also placed considerable emphasis on awareness generation and stakeholder education. Various outreach initiatives have been conducted to educate seafarers regarding fraudulent recruitment practices, illegal fee demands and risks associated with unauthorised agents. Awareness programmes focus on strengthening understanding of

recruitment procedures, employment rights, grievance mechanisms and available protections under Indian and international maritime regulations. By improving awareness among seafarers, the administration seeks to reduce vulnerability to exploitation and encourage informed decision-making while seeking employment opportunities.

An effective grievance redressal framework has been developed to ensure timely assistance and corrective action in cases involving complaints against recruitment agencies or related stakeholders. Dedicated support mechanisms, structured complaint handling procedures and time-bound resolution processes contribute towards improving confidence within the maritime workforce. Such mechanisms enable seafarers to report suspected irregularities and seek assistance without undue delay. Strengthening grievance redressal systems also promotes accountability among recruitment agencies and supports a more responsive regulatory environment capable of addressing emerging concerns in a timely manner.

Continuous audits and inspections form another important pillar of the overall strategy. Regular compliance assessments allow regulators to identify operational deficiencies, evaluate adherence to prescribed standards and verify implementation of regulatory requirements. Inspections also serve as an important quality assurance mechanism by ensuring that recruitment practices remain aligned with legal and ethical standards. Through sustained monitoring and enforcement, DG Shipping seeks to create a culture of compliance that discourages unethical practices and promotes professionalism across the maritime recruitment ecosystem.

The strengthening of recruitment governance is also linked to broader objectives relating to seafarer welfare and maritime safety. Recruitment irregularities can have far-reaching consequences extending beyond employment-related issues and may contribute to abandonment cases, contractual disputes, welfare concerns and operational safety risks. Ensuring that seafarers are recruited through authorised channels and deployed on compliant vessels is therefore an important element of safeguarding the overall integrity of the maritime sector. Increased transparency within recruitment processes supports not only seafarer welfare but also enhances confidence among shipowners, international employers and other maritime stakeholders.

The combined approach of regulatory oversight, digital verification, stakeholder awareness, grievance handling and continuous monitoring reflects the commitment of DG Shipping to establishing a corruption-free, transparent and accountable maritime recruitment system. By strengthening governance across the crewing value chain and promoting ethical recruitment practices, the administration seeks to protect the rights and interests of Indian seafarers while creating a safer and more trustworthy maritime employment environment. These initiatives contribute towards the broader objective of building a welfare-oriented maritime ecosystem founded on integrity, compliance and responsible governance.

Maritime Crewing



Human element is of paramount importance in the maritime industry as human skills, judgement and welfare drive maritime safety.

CHALLENGES FACING SEAFARERS

Abandonment of Seafarers

- 80 active abandonment/arrest cases involving 512 seafarers
- Repatriation, wage and welfare concerns.

Deaths and Missing and Casualties

- 408 death cases and 192 missing cases tracked
- Compensation, family support and welfare intervention.

Fraud & Corruption in Crewing

- Illegal recruitment practices and fraudulent RPSLs
- Zero Tolerance for Corruption in Crewing.

INTERVENTIONS & WELFARE BODIES | Zero tolerance for corruption in crewing

Seafarers Assistance and Facilitation Counter

Dedicated seafarer helpdesk and grievance support.

Digital Interventions

E-Navik: 24x7 Grievance Redressal Module, Crisis Management Module, RPSL Module

Seafarer Welfare Fund Society (SWFS)

- 12 welfare schemes for seafarers and families covering Death, disability, maternity, education and insurance support
- Welfare assistance up to ₹10 lakh in high-risk cases

Seamen's Provident Fund Organization

- Provident fund and retirement security
- Long-term financial protection.

Welfare Infrastructure - SWBAT

- ₹90 Cr welfare infrastructure programme
- Seafarer clubs, welfare centres and outreach facilities²
- 14 projects across major maritime locations

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8.9. Mission 20

The most important message from the file is that India's active seafarer base has grown from 62,267 in 2010 to 323,429 in 2025, which means the active workforce has expanded by about 419% over fifteen years. In CAGR terms, this is roughly 11.6% annual growth across the period. This is not a marginal increase; it reflects a structural scaling of India's maritime labour pool. The growth is especially notable because it was not entirely linear. The data shows a long upward arc from 2010 to 2019, a visible disruption around 2020–2021, and then a strong rebound from 2022 onward, culminating in the highest level yet in 2025. The composition of this growth is equally important. Based on the DGMA data, the ratings segment has expanded much faster than the officer segment. Active ratings increased from 26,711 in 2010 to 209,436 in 2025, which is roughly a 684% increase over the period and about 14.7% annualized growth. Officers, by comparison, increased from 35,556 in 2010 to 113,993 in 2025, which is still a strong increase of around 221%, but far slower than ratings growth, with CAGR of roughly 8.1%. This means that the overall expansion of India's active seafarer base has been driven disproportionately by ratings rather than officers. Over time, the workforce mix has tilted more strongly toward ratings, with ratings accounting for around 42.9% of active seafarers in 2010 and about 64.8% by 2025, while the officer share has fallen from roughly 57.1% to 35.2% over the same period. Page 145 of 412 Indian Seafarer Competitiveness Strategy - PwC The data also shows that the nautical side has grown faster than the engineering side. Active nautical seafarers increased from 36,423 in 2010 to 217,654 in 2025, which represents nearly 498% growth, while engineering seafarers increased from 25,844 to 105,775, which is around 309% growth. In CAGR terms, nautical grew at roughly 12.7% annually, compared with 9.9% for engineering. This has changed the internal structure of the maritime

workforce. In 2010, nautical personnel accounted for about 58.5% of active seafarers, while engineering accounted for 41.5%. By 2025, nautical had increased to roughly 67.3%, while engineering had fallen to about 32.7% of the total. This indicates that the strongest expansion has occurred in nautical tracks, especially among ratings and seafarer-facing vessel roles. One of the most useful features of the data is that it clearly captures the pandemic-era disruption and post pandemic rebound. Active seafarers increased consistently until 2019, reaching 234,886, but then dropped to 224,478 in 2020 and further to 205,787 in 2021. This means the total active seafarer base contracted by roughly 12.4% between 2019 and 2021. The disruption was sharper on the ratings side than the officer side. Ratings fell from 144,930 in 2019 to 116,262 in 2021, a reduction of nearly 19.8%, while officers remained comparatively resilient, decreasing only marginally from 89,959 to 89,525. This is a crucial point because it suggests that lower and mid-rank labour-market exposure was more vulnerable during the disruption period, while the officer base held up better. From 2021 to 2025, however, the system recovered strongly, with the total active workforce increasing by roughly 57.2%, showing that the contraction was temporary rather than structural. The rank-wise structure gives further depth to this story. On the nautical side, the single largest category by 2025 is Cruise Vessel Employees, at 39,266, followed by A B at 18,318, Crew (Others) at 13,741, Hospitality Staff at 13,677, Second Officer at 12,925, Cook at 12,672, and Ordinary Seaman at 12,433. This is highly significant because it shows that the modern Indian seafaring profile is no longer confined only to traditional cargo-vessel hierarchies. The scale of cruise-related roles, saloon, hospitality, and broad service side categories has become too large to treat as peripheral. In fact, the Cruise Vessel Employees category is now the single largest nautical rank block in the file, which signals an important shift in the structure of opportunity and labour deployment. The growth within nautical ranks also shows where momentum has been strongest. The biggest absolute increase is in Cruise Vessel Employees, rising from just 27 in 2010 to 39,266 in 2025. Other major gainers include A B, Hospitality Staff, Crew (Others), Ordinary Seaman, Trainee Deck Rating, and Cook. This indicates that the widening of the nautical labour base is being driven by both conventional deck pathways and newer service-intensive segments, especially cruise and hospitality-linked employment. It also suggests that policy discussions around the Indian seafaring workforce should no longer treat cruise and service-side roles as niche segments; they are now central to workforce growth. At the same time, the nautical data also reveals where stress appeared during the 2019–2021 period. The sharpest declines in that phase were visible in Cruise Vessel Employees, Crew (Others), Trainee Deck Rating, Hospitality Staff, and Deck Rating. This is consistent with what would be expected during a disruption period that hit cruise, hospitality, and internationally mobile labour particularly hard. The decline in these segments does not change the longer-term growth story, but it does show that parts of the seafaring workforce are more exposed to cyclical and global disruptions than others. On the engineering side, the largest category by 2025 is 3rd Engineer, at 12,095, followed very closely by Oiler at 11,893, Engine Petty Officer at

11,539, 2nd Engineer at 10,403, Chief Engineer at 9,023, and Watch Keeping Engineer Officer OICEW at 8,918. This means the engineering workforce remains much more rank-structured around the formal engine-room ladder than the nautical side, which has seen broader diversification across cruise, hospitality, and service categories. Engineering therefore appears more traditional in its composition, even though it too shows important new technical streams. The strongest growth engines in engineering are Oiler, Engine Petty Officer, 3rd Engineer, Watch Keeping Engineer Officer, 2nd Engineer, Electro Technical Officer, Trainee Engine Rating, Motorman, and Trainee Page 146 of 412 Indian Seafarer Competitiveness Strategy - PwC Marine Engineer. These trends are especially important because they show that both classical engine-room roles and newer technical categories are expanding together. The rise of Electro Technical Officer, from 322 in 2010 to 5,082 in 2025, is particularly significant because it reflects the broader technological complexity of ships and the increasing importance of automation, electrical systems, and digitally integrated vessel operations. The 2019–2021 dip on the engineering side shows a different pattern from nautical. The largest engineering declines in that period were visible in Trainee Engine Rating, Watch Keeping Motor Man, Trainee Marine Engineer, Electrical/ Electronic Officer, Watch Keeping Engineer Officer, and Engineer Cadet. This again suggests that junior and trainee categories were hit first and hardest by labour-market disruption, while the fully established officer base remained comparatively more stable. The female seafarer trend in the workbook is also important, though it requires careful handling because the female breakdown tables contain some internal inconsistencies in the nautical subcomponents for later years. What is reliable in the data is the total female count by year. Based on the DGMA data, female active seafarers increased from 1,599 in 2021 to 7,033 in 2025. This means the female active seafarer base has expanded by around 340% in just four years. As a share of total active seafarers, women increased from roughly 0.78% in 2021 to about 2.17% in 2025. This is a meaningful shift, even though the base remains small. The high-level split also shows that the large majority of women in the file are on the nautical side, with a much smaller engineering representation. That means inclusion is improving, but the growth is still concentrated more in selected tracks than across the whole maritime labour base. The rank-level female data supports the view that female seafaring growth is highly segmented. On the nautical side, major visible female categories include Cruise Vessel Employees, Hospitality Staff, Deck Rating, and cadet or junior officer pathways, while on the engineering side female participation remains concentrated in officer and cadet-level technical roles rather than broad-based ratings growth. This suggests that women's participation is increasing but is doing so unevenly and likely through a combination of cadet pipelines, cruise-linked employment, hospitality tracks, and specific officer channels rather than through full-spectrum sectoral integration. The Indian-flag versus foreign-flag split is one of the clearest strategic signals in the workbook. From 2016 to 2025, the overwhelming majority of active Indian seafarers are employed on foreign-flag vessels rather than Indian-flag vessels. In 2025, out of 323,429 active seafarers, only

30,558 are shown under Indian-flag employment, while 292,871 are shown under foreign-flag employment. That means roughly 90.6% of active Indian seafarers are on foreign-flag vessels, and only about 9.4% are on Indian-flag vessels. This foreign dominant structure is not new, but it is becoming even more visible and more deeply embedded over time. The same foreign-dominant pattern holds separately for both officers and ratings. In 2025, only 12,952 officers are on Indian-flag vessels, compared with 101,040 officers on foreign-flag vessels. Similarly, only 17,606 ratings are on Indian-flag vessels, compared with 191,831 ratings on foreign-flag vessels. This means that nearly 88.6% of officers and about 91.6% of ratings are sailing under foreign flags. The implication is straightforward: India is now primarily a global maritime labour supplier, not a flag-contained national labour market. That is why international competitiveness, foreign-carrier access, global recognition, and market linkage matter so much for the future of Indian seafaring. The trend over time also suggests that Indian-flag employment has remained comparatively flat, while foreign-flag employment has done most of the expansion work. Indian-flag seafarers increased only modestly from around 20,211 in 2016 to 30,558 in 2025, while foreign-flag seafarers grew far more strongly, from 123,729 to 292,871 over the same period. In other words, most of the growth in India's active seafarer base is being generated by the foreign-flag labour market, not by domestic-flag fleet expansion. This has major strategic implications. It means the future of Indian seafaring is tied much more closely to global shipping demand and international hiring networks than to Indian-flag fleet size alone. Page 147 of 412 Indian Seafarer Competitiveness Strategy - PwC The projection sheet extends this pattern forward. Based on the DGMA projected trend, the active seafarer base is expected to increase from 3.234 lakh in 2025 to about 4.328 lakh by 2030. That implies an increase of roughly 1.094 lakh over five years, or around 34% growth from the 2025 base. The annual pace implied by the projection is lower than the strong historic surge seen in some of the rebound years after 2021, which suggests a more moderated but still healthy growth trajectory going forward. This indicates that the system is expected to keep expanding, but perhaps on a more stable slope rather than through another step-jump. A very important structural conclusion emerges when these pieces are read together. The Indian active seafarer base is not just getting larger; it is becoming more rating-heavy, more nautical-heavy, more foreign flag dependent, and more diversified in role composition, especially through cruise, hospitality, service, and broad support categories. At the same time, the officer segment continues to grow, but not as quickly as ratings. Engineering remains strong, but is growing more slowly than nautical. Women's participation is increasing, but from a low base and with uneven distribution across categories. This has direct strategic implications for policy and workforce planning. First, if India wants to move from being a large supplier to becoming a stronger strategic maritime workforce power, then the officer pipeline needs focused strengthening. The data makes it clear that ratings growth has carried much of the headline expansion, but officer depth remains critical for long-term competitiveness, command capability, and higher value deployment. Second, the extreme dependence on

foreign-flag employment means labour-market trust, documentation quality, international recognition, and direct employer linkage are far more important than domestic fleet size alone. Third, the rise of cruise and hospitality-linked roles suggests that the definition of “seafarer strategy” must widen beyond the traditional cargo-vessel frame. A further implication is that volatility affects different segments. The disruption around 2020–2021 hit cruise, hospitality, ratings, and junior or trainee categories much harder than it hit the established officer core. This means the resilience of the maritime labour market is uneven. The most vulnerable segments are often those with less bargaining power, lower sea-time accumulation, or greater reliance on rapidly shifting international service patterns. A more resilient ecosystem would therefore need better transition support for junior entrants, better placement continuity, and stronger market-linkage mechanisms for segments most exposed to disruption. Overall, based on the DGMA active seafarer data, India’s maritime workforce story is one of rapid structural rise with clear internal imbalances. The country’s active seafarer base has reached a scale where it can no longer be understood as just an output of training institutions. It is now a large labour-market system shaped by foreign-flag demand, ratings-led expansion, nautical-sector dominance, and growing role diversification. The next phase of strategy should therefore focus not only on expanding numbers further, but on improving the composition, quality, and resilience of that growth—especially by accelerating officer development, protecting and formalizing higher-growth segments, improving the international employability architecture, and ensuring that inclusion and diversification are backed by real institutional support rather than by raw expansion alone.

9. Ship Building and Repairs

9.1. Introduction

Shipbuilding has returned to the centre of India's maritime agenda, and it has done so at a moment of rare opportunity. The world's leading yards are committed three to five years forward, the global fleet is entering a replacement cycle weighted decisively towards larger tonnage, and owners are actively seeking capacity beyond the three nations that have long dominated the industry. India meets this moment with a coastline of over 11,000 kilometres, deep-water sites available at scale, an established steel industry, a leading global position in ship recycling and a maritime workforce recognised across the world's fleets. In September 2025 the Government of India matched that endowment with commitment, approving a programme of approximately \$7.8 Bn across four pillars to build shipbuilding capacity, capability and demand over the decade to 31 March 2036.

Section 2 establishes the demand context: the size and trajectory of the global market, the order backlog now held by the leading shipbuilding nations, the structural shift towards larger vessels, and the vessel mix through which scale and margin can both be secured. Section 3 sets out the four-pillar architecture and the incentives available at each stage of a shipbuilding investment. Sections 4 to 6 examine the three funded pillars in turn: the Shipbuilding Financial Assistance Scheme at \$2.7 Bn, the Maritime Development Fund at \$2.8 Bn, and the Shipbuilding Development Scheme at \$2.2 Bn, the last comprising greenfield cluster development and brownfield capacity expansion. Section 7 addresses the aggregation of public sector demand into a visible order pipeline, Section 8 the component manufacturing agenda on which domestic value addition depends, and Section 9 the Container Manufacturing Promotion Scheme. Section 10 draws the argument together as the conclusion.

9.2. The Global Shipbuilding Market: Demand Context

India is entering shipbuilding at a favourable point in the global cycle. Three propositions support this: the market is growing at a healthy rate after a prolonged period of stagnation, existing yards are already committed several years forward and cannot readily absorb incremental demand, and the composition of demand is shifting towards vessel classes that reward new, purpose-built capacity rather than incumbency in legacy facilities. Each is examined in turn.

Market size and the growth outlook to 2030

The global shipbuilding and repair market, measured across both commercial and defence vessels, stood at approximately \$158 Bn in 2018 and expanded to approximately \$205 Bn by 2023. It then plateaued, easing marginally to approximately \$204 Bn in 2024 before recovering to approximately \$215 Bn in 2025, which represents compound growth of only about 2 per cent a year across those two years. The market is projected to reach approximately \$262 Bn by 2030, implying compound growth of 4 to 5 per cent a year over the forecast period.

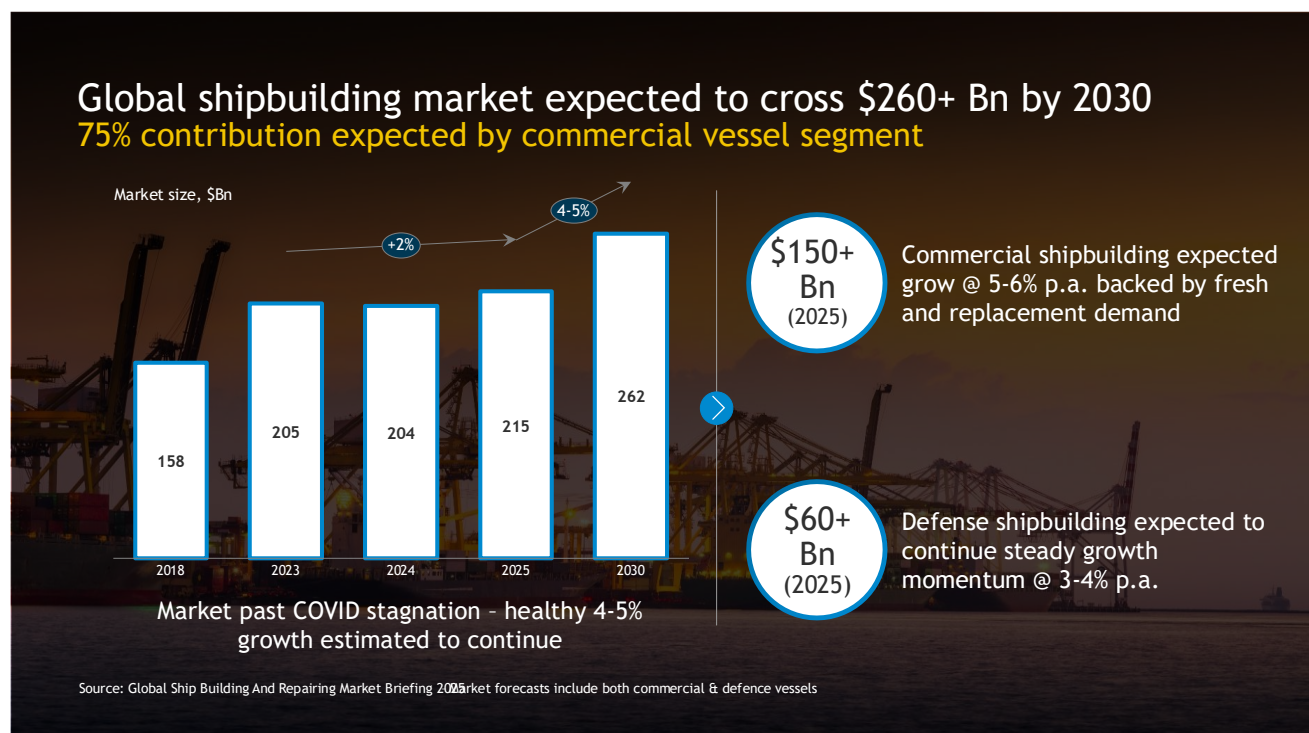


Exhibit 2.1: Global shipbuilding and repair market size, 2018 to 2030

Two features of this trajectory deserve emphasis. The first is the inflection in the growth rate. The two years from 2023 to 2025 delivered compound growth of only about 2 per cent a year and included an absolute contraction in 2024. The forward projection to 2030 assumes 4 to 5 per cent compound growth, roughly double that recent rate. The presentation characterizes this as the market having moved past COVID stagnation, with healthy growth of 4 to 5 per cent now estimated to continue. The projection therefore

embeds an assumption of renewed expansion rather than a simple extrapolation of the immediately preceding period.

The second feature is the divergence between the two constituent segments. Commercial shipbuilding accounted for over \$150 Bn of the 2025 total and is expected to grow at 5 to 6 per cent a year, driven by a combination of fresh demand and replacement of ageing tonnage. Defence shipbuilding accounted for over \$60 Bn and is expected to grow more slowly, at 3 to 4 per cent a year, though from a base of considerable stability. Because the commercial segment is both larger and faster growing, its share of the total rises over the forecast period, and the commercial vessel segment is expected to account for approximately 75 per cent of the market by 2030.

For India, the practical significance is that the addressable opportunity is concentrated in commercial tonnage. Defence shipbuilding in India is already established, with capable public and private yards and a settled procurement relationship with the Indian Navy and Coast Guard. The commercial segment, by contrast, is where Indian participation is negligible relative to market size, and it is also the segment where growth is fastest. The policy instruments described in later sections are accordingly weighed towards commercial vessel construction, with specialised and defence-adjacent tonnage treated as a margin-enhancing complement rather than the primary target.

The shipbuilding Supercycle and order backlog

Market growth alone would not create an opening for a new entrant if existing yards had spare capacity to absorb it. The second element of the argument is therefore that the global yard base is already heavily committed. The conventional measure of this commitment is backlog duration, expressed as the ratio of the order book to the volume delivered in the most recent full year, and therefore readable as the number of years of work a yard has already secured.

Shipbuilding Supercycle | Approx 3-5 yrs of order backlog across leading global shipyards

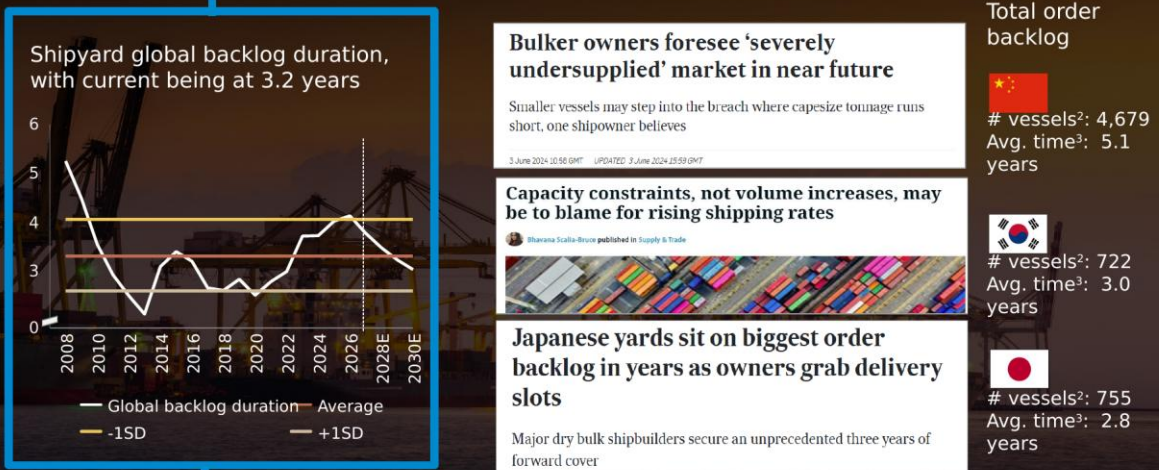


Exhibit 2.2: Global shipyard backlog duration and country order books

Global backlog duration currently stands at 3.2 years, against a long-run average of approximately 2.2 years. The measure is therefore running about one full year above its historical mean. The historical series makes the significance of this clearer: backlog duration collapsed in the years following the 2008 financial crisis, falling well below one year in the middle of the last decade as the industry worked through a severe demand contraction, and has recovered steadily since. The present position is among the strongest in the period observed.

Disaggregating the order book by the three dominant shipbuilding nations, measured on compensated gross tonnage as of 30 June 2026 against deliveries in the last full year, produces the following picture. China holds an order book of 4,679 vessels with an average backlog of 5.1 years. South Korea holds 722 vessels at an average of 3.0 years. Japan holds 755 vessels at an average of 2.8 years. Across the leading global yards, the backlog therefore runs to approximately 3 to 5 years.

The implication is direct. A shipowner placing an order at a leading Chinese yard today is negotiating for delivery around five years hence. Owners who require tonnage earlier than that, or who wish to diversify their supplier base for commercial or strategic reasons, must look beyond the incumbent three. This is the specific commercial opening that Indian capacity is intended to address. The window is, however, time bound. Backlog duration is cyclical, and the same series that shows the current elevation also shows how rapidly it can unwind. Capacity that comes on stream after the cycle turns will face materially harder market conditions than capacity that is available while owners are still

queuing. The urgency embedded in the scheme timelines described in later sections follows from this.

The structural shift towards larger vessels

The third element of the demand argument concerns the composition rather than the volume of future orders. The global fleet totals 116,041 vessels. Distributed by age, 28,089 vessels or 24 per cent are under ten years old, 39,761 vessels or 34 per cent are between eleven and twenty years, 17,408 vessels or 15 per cent are between twenty-one and thirty years, 11,120 vessels or 10 per cent are between thirty-one and forty years, and 19,663 vessels or 17 per cent are over forty years old.

Shift in global demand being witnessed towards larger vessels

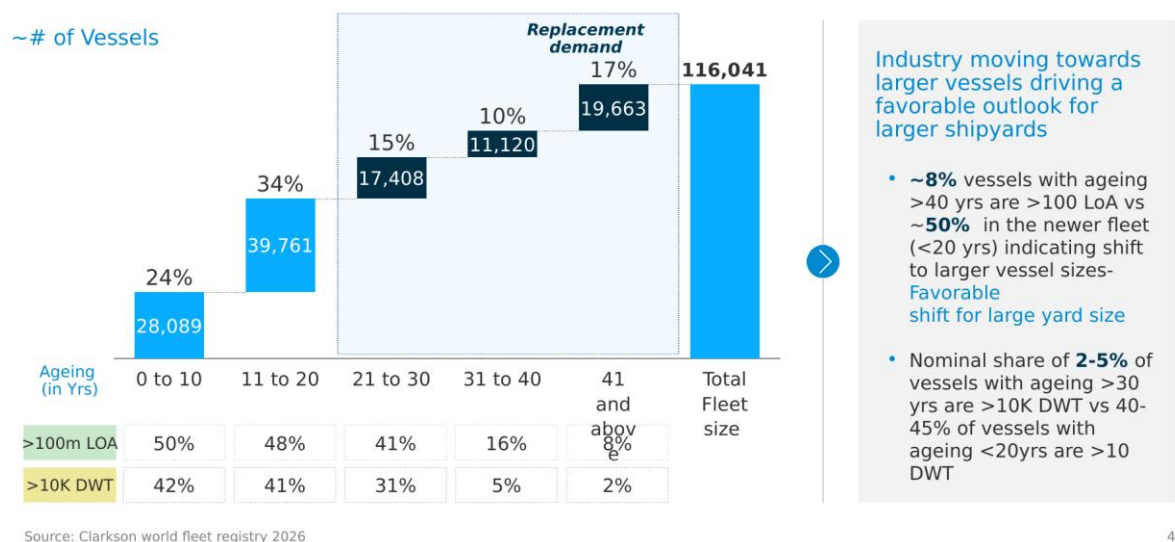


Exhibit 2.3: Global fleet by age band, with vessel size characteristics

The vessels in the older age bands constitute the replacement demand pool. What makes this pool analytically interesting is not its size but the contrast between the vessels leaving the fleet and those entering it. Among vessels over forty years old, only about 8 per cent exceed 100 metres in length overall, and only about 2 per cent exceed 10,000 deadweight tonnes. Among vessels under ten years old, approximately 50 per cent exceed 100 metres in length overall and approximately 42 per cent exceed 10,000 deadweight tonnes. The pattern holds across the intermediate bands: 48 per cent of vessels aged eleven to twenty years exceed 100 metres, falling to 41 per cent for those aged twenty-one to thirty and 16 per cent for those aged thirty-one to forty.

The fleet is therefore not simply being replaced; it is being replaced with substantially larger units. A small ageing vessel is not typically succeeded by another small vessel but is absorbed into the capacity of a larger one. This has a direct bearing on what kind of yard

India should build. Capacity designed around the dimensions of the vessels now being retired would be capacity designed for a market that is contracting. The favorable configuration is a large yard, with dock and berth dimensions, craneage and outfitting capacity suited to vessels above 100 metres in length overall and above 10,000 deadweight tonnes.

This conclusion is reflected directly in the design parameters of the greenfield clusters described in section 6.4, where the sites under development offer post-dredging depths of 10 to 16 metres and waterfronts of 1.8 to 3 kilometres. Those specifications are not incidental; they are what the size profile of future replacement demand requires.

Composition of the ageing fleet by vessel category

Having established that replacement demand favors larger vessels, the next question is which vessel categories that demand will fall into. The ageing fleet, comprising vessels in the older age bands, totals 48,191 units. Its composition by category is set out below.

Tugs, GCC, Ferries and tankers cover 70% of the ageing fleet

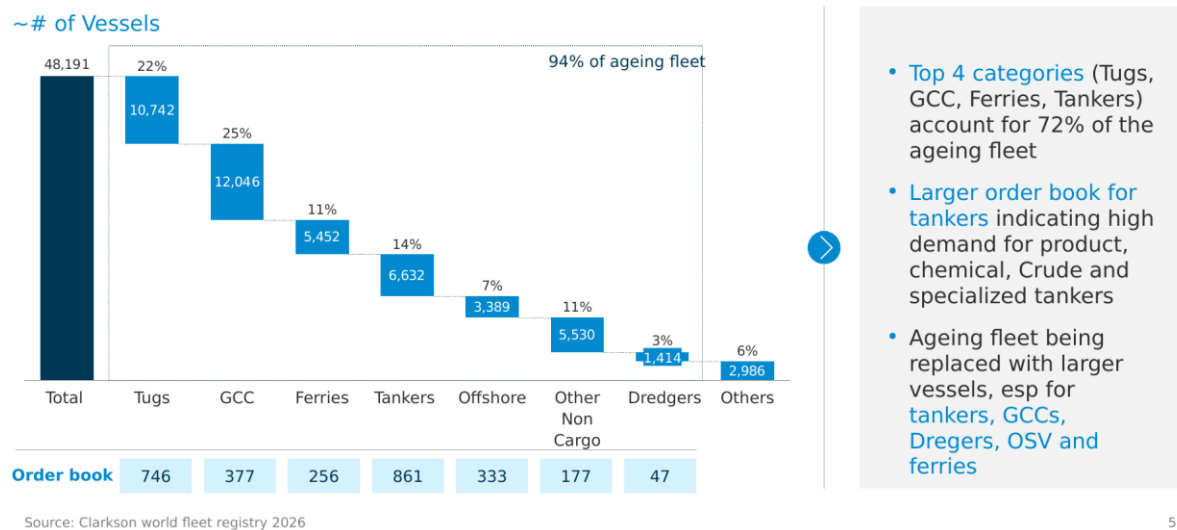


Exhibit 2.4: Ageing fleet and order book by vessel category

Vessel category	Ageing fleet (vessels)	Share of ageing fleet
General cargo carriers	12,046	25%
Tugs	10,742	22%
Tankers	6,632	14%
Other non-cargo	5,530	11%

Vessel category	Ageing fleet (vessels)	Share of ageing fleet
Ferries	5,452	11%
Offshore	3,389	7%
Dredgers	1,414	3%
Others	2,986	6%
Total	48,191	100%

Table 2.1: Composition of the ageing fleet by vessel category

Four categories, namely tugs, general cargo carriers, ferries and tankers, together account for 72 per cent of the ageing fleet. Extending the list to include offshore vessels, other non-cargo vessels and dredgers brings the coverage to approximately 94 per cent. Replacement demand is therefore concentrated rather than dispersed, which is favourable for a new entrant: a yard need not develop competence across the full spectrum of vessel types to address the bulk of the opportunity.

The order book provides a forward reading of where that demand is being placed, and it does not simply mirror the ageing fleet. The largest order book among these categories is for tankers, at 861 vessels, notwithstanding that tankers represent 14 per cent of the ageing fleet rather than the largest share. This indicates demand running ahead of pure replacement, reflecting requirements for product tankers, chemical tankers, crude carriers and specialised tanker tonnage. Order books across the remaining categories range from 47 vessels at the lower end to 746 vessels, with tugs, general cargo carriers, ferries and offshore vessels all represented.

Read together with the size analysis in section 2.3, the pattern is one of ageing tonnage being replaced by larger tonnage within the same broad categories, and this effect is most pronounced for tankers, general cargo carriers, dredgers, offshore support vessels and ferries. For Indian yards, the practical reading is that tankers and general cargo carriers offer the largest addressable volumes, while dredgers, offshore support vessels and ferries offer more specialised opportunities where domestic demand from public sector programmes, discussed in section 7, can provide an initial order base.

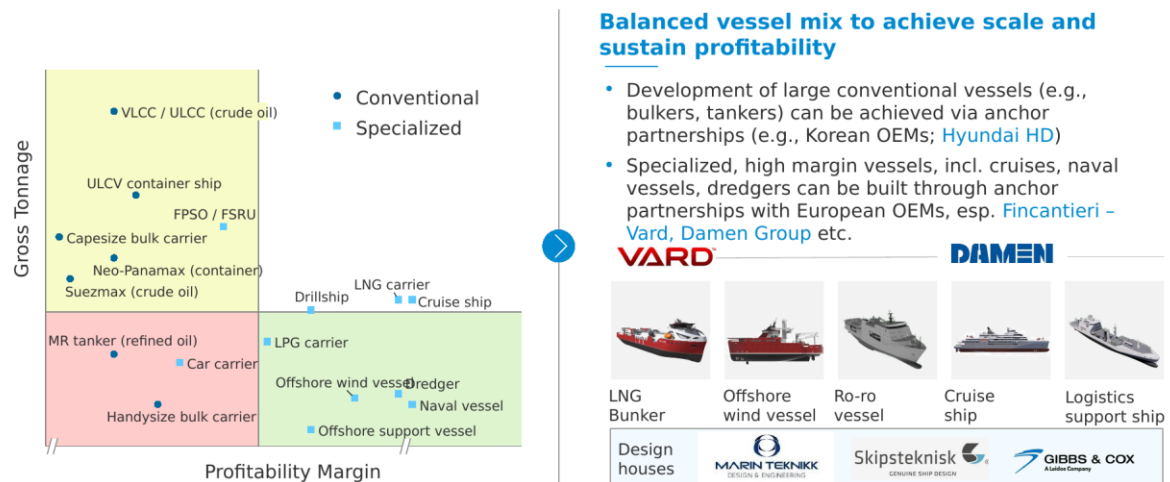
Balancing scale against margin in the vessel mix

The final element of the demand analysis addresses a tension in the strategy. The tonnage targets that India has set require volume, and volume is most readily achieved through large conventional vessels. Those vessels, however, are also the most price-competitive segment of the market, where established yards in China, South Korea and Japan

compete on cost at scale. Building only conventional tonnage would deliver gross tonnage but compress margins.

Larger vessel builds will help achieve scale targets

However, specialized vessel knowhow required to maintain margins



Matrix is indicative, not to scale

Exhibit 2.5: Indicative positioning of vessel types by gross tonnage and profitability margin

The exhibit positions vessel types along two axes: gross tonnage, which stands as a proxy for the contribution a vessel makes to scale targets, and profitability margin. The conventional group occupies the high-tonnage, lower-margin region and includes very large and ultra large crude carriers at around 80,000 gross tonnes, ultra large container vessels at around 60,000, Capesize bulk carriers at around 50,000, Neo-Panamax container vessels at around 45,000, Suezmax crude tankers at around 40,000, medium range refined product tankers at around 22,000, and Handysize bulk carriers at around 10,000.

The specialised group occupies the higher-margin region across a wider tonnage spread and includes floating production and storage units and floating storage and regasification units at around 52,500 gross tonnes, liquefied natural gas carriers and cruise ships at around 35,000, drillships at around 32,500, liquefied petroleum gas carriers at around 25,000, car carriers at around 20,000, dredgers at around 12,500, offshore wind installation vessels at around 11,500, naval vessels at around 10,000, and offshore support vessels at around 4,000. The matrix is indicative and is not drawn to scale.

The conclusion drawn in the address is that a balanced vessel mix is required, and that the route to both halves of that mix runs through anchor partnerships with established international builders and design houses. For large conventional vessels, the partners identified are Korean original equipment manufacturers, with HD Hyundai named specifically. For specialised, higher-margin tonnage including cruise vessels, naval

vessels and dredgers, the partners identified are European original equipment manufacturers, with Fincantieri and its Vard subsidiary and the Damen Group named specifically. Within the specialised category, five vessel types are highlighted as immediate priorities: liquefied natural gas bunkering vessels, offshore wind vessels, roll-on roll-off vessels, logistics support ships and cruise ships.

The reliance on anchor partnerships is deliberate and reflects a realistic assessment of where Indian capability currently stands. Neither large conventional nor specialised construction can be established from a standing start on domestic know-how alone. Design capability, production engineering and supply chain qualification all require transfer from builders who already possess them. This is why HD Hyundai appears not only in this analysis but also as the anchor investor in the Thoothukudi cluster discussed in section 6.4, and why the anchor shipyard requirement is written into the greenfield cluster conditions described in section 6.2.

9.3. India's Policy Architecture for Shipbuilding

The four pillars and the total outlay of approximately \$7.8 Bn

The Government of India has organised its response to the opportunity described in section 2 around four pillars, with a combined approved outlay of approximately \$7.8 Bn. Three of the four carry a specific financial allocation; the fourth is a programme of legal, policy and process reform which enables the others rather than disbursing funds itself.



Exhibit 3.1: The four pillars of the shipbuilding programme and their outlays

Pillar	Instrument	Outlay	Composition
1	Shipbuilding Financial Assistance Scheme	\$2.7 Bn	Includes the Ship Recycling Credit Note of \$0.44 Bn
2	Maritime Development Fund	\$2.8 Bn	Maritime Investment Fund \$2.2 Bn and Interest Incentivization Fund \$0.56 Bn
3	Shipbuilding Development Scheme	\$2.2 Bn	Capacity and capability development, and credit risk coverage
4	Legal, Policy and Process Reforms	-	Customs exemptions, right of first refusal, flagging reforms and related measures
	Total	Approximately \$7.8 Bn	

Table 3.1: The four pillars and their approved outlays

The three funded pillars are close to equal in scale, at approximately \$2.8 Bn, \$2.8 Bn and \$2.2 Bn respectively, and this near-parity is itself informative. It indicates that the programme does not rest on a single dominant instrument but distributes support across three distinct functions. The Shipbuilding Financial Assistance Scheme addresses the unit economics of each vessel constructed. The Maritime Development Fund addresses the availability and cost of capital. The Shipbuilding Development Scheme addresses the physical capacity to build at all. A shipyard that received only one of the three would still face a binding constraint from the other two.

The fourth pillar carries no outlay but should not be read as secondary. Customs exemptions determine the landed cost of imported components, which matters directly given the import dependence documented in section 8. The right of first refusal determines whether Indian-built and Indian-flagged tonnage has preferential access to domestic cargo. Flagging reforms determine the administrative cost of registering and operating a vessel under the Indian flag. These measures shape the commercial environment within which the funded instruments operate, and their absence would blunt the effect of the funded pillars considerably.

All dollar figures follow the denomination used in the presentation, with rupee equivalents converted at the exchange rate of Rs. 90 per dollar stated on the same slide.

Financial incentives across the shipbuilding lifecycle

The four pillars are more usefully understood not as parallel schemes but as a sequence of interventions aligned to the stages at which a shipbuilding enterprise incurs cost and faces risk. Slide 74 presents the same architecture organised along this lifecycle.

Attractive Financial incentives across the Shipbuilding lifecycle to augment project economics, approved budget of ₹ 69,725 Cr

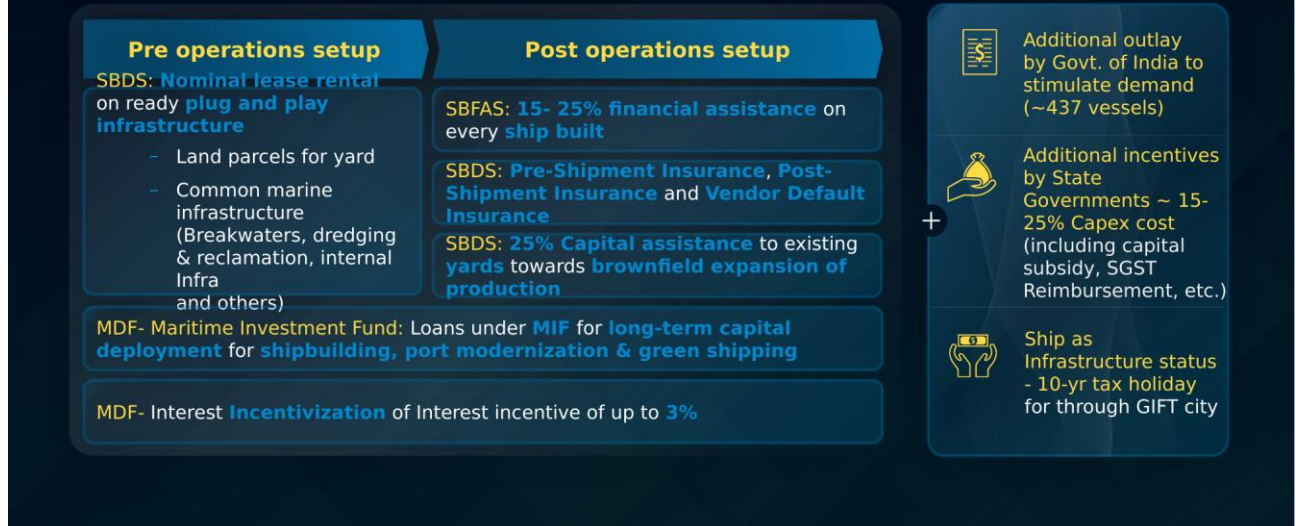


Exhibit 3.2: Financial incentives mapped across the shipbuilding lifecycle

At the pre-operations stage, before a yard has built anything, the binding constraints are land and marine access. Under the Shipbuilding Development Scheme, a yard entering a greenfield cluster obtains land parcels together with ready plug-and-play infrastructure at nominal lease rental, and the common marine infrastructure on which its operations depend, including breakwaters, dredging and reclamation and internal infrastructure, is provided rather than financed by the yard. This removes from the yard the single largest and least bankable element of shipbuilding capital cost.

At the post-operations stage, once the yard is building, four instruments apply. The Shipbuilding Financial Assistance Scheme provides 15 to 25 per cent financial assistance on every ship built. The Shipbuilding Development Scheme provides risk cover through pre-shipment insurance, post-shipment insurance and vendor default insurance, addressing the counterparty and execution risks that make shipbuilding difficult to finance conventionally. For existing yards, the same scheme provides 25 per cent capital assistance towards brownfield expansion of production capacity. The Maritime Development Fund provides loans through the Maritime Investment Fund for long-term capital deployment across shipbuilding, port modernisation and green shipping, together with an interest incentive of up to 3 per cent.

Three further elements sit outside the four pillars but materially affect project economics. The first is additional outlay by the Government of India to stimulate demand, covering approximately 437 vessels, which is the demand aggregation programme examined in section 7. The second is additional incentive from state governments, estimated at 15 to 25 per cent of capital expenditure through mechanisms including

capital subsidy and reimbursement of state goods and services tax. The third is the extension of infrastructure status to ships, which enables a ten-year tax holiday through GIFT City.

Taken together, these interact multiplicatively rather than additively. A yard in a greenfield cluster receives infrastructure at nominal cost from the Centre, capital subsidy from the state, concessional debt and interest support from the Maritime Development Fund, per-vessel assistance under the Shipbuilding Financial Assistance Scheme, insurance cover against execution risk, a visible order pipeline through demand aggregation, and favourable tax treatment on the resulting asset. It is the combination, rather than any single instrument, that is intended to close the competitiveness gap against established yards operating at far greater scale.

9.4. Pillar 1: Shipbuilding Financial Assistance Scheme

Scheme composition and the assistance rate structure

The Shipbuilding Financial Assistance Scheme is the instrument that addresses the unit economics of vessel construction. Its purpose is to bridge the cost differential between an Indian yard and an established international competitor on each individual vessel, rather than to subsidise the yard as an enterprise. The approved outlay of \$2.7 Bn comprises three components: approximately \$2.3 Bn for the extension of the financial assistance scheme itself, \$0.44 Bn for the Ship Recycling Credit Note, and approximately \$0.02 Bn for the establishment of the National Shipbuilding Mission.

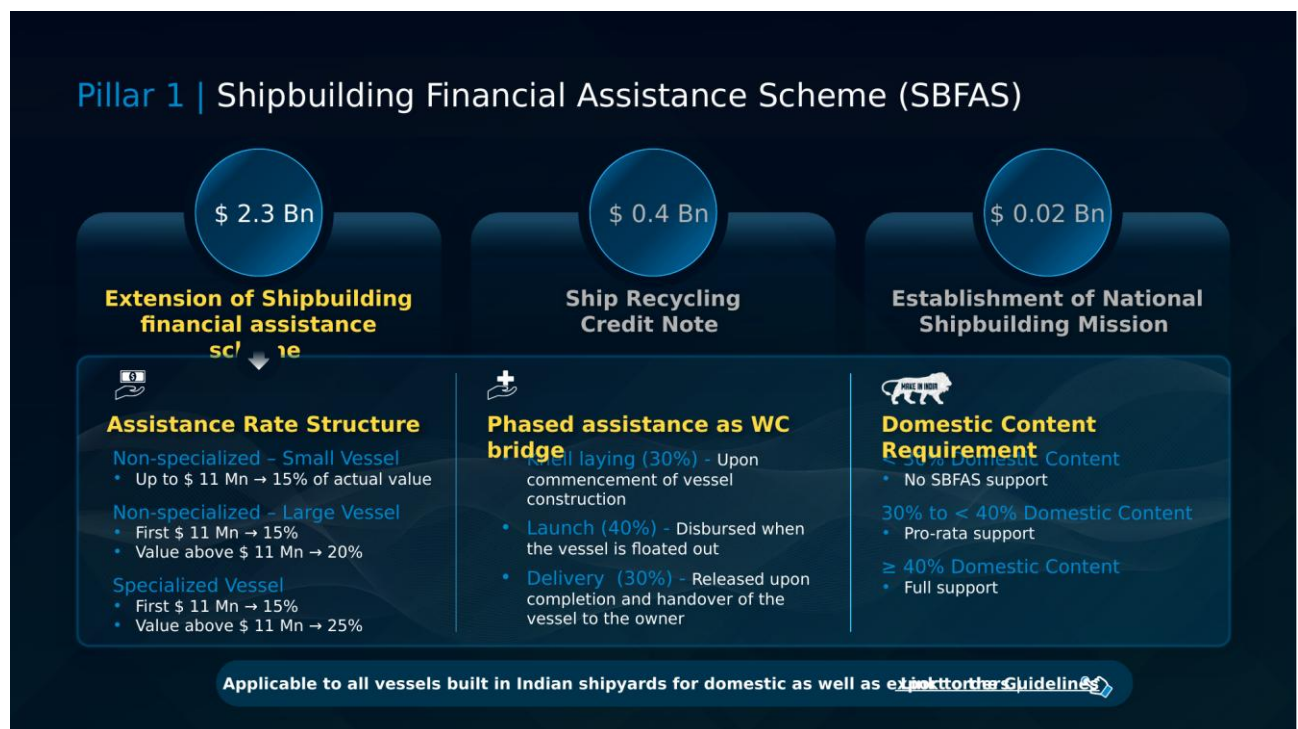


Exhibit 4.1: Shipbuilding Financial Assistance Scheme: composition and assistance structure

The assistance rate structure is tiered by vessel type and by contract value, and is deliberately weighted towards larger and more specialised vessels.

Vessel category	First \$11 Mn of value	Value above \$11 Mn
Non-specialised, small vessel (up to \$11 Mn)	15% of actual value	Not applicable
Non-specialised, large vessel	15%	20%
Specialised vessel	15%	25%

Table 4.1: Assistance rate structure under the Shipbuilding Financial Assistance Scheme

The structure carries a clear intent. A small non-specialised vessel attracts 15 per cent. A large non-specialised vessel attracts 15 per cent on the first \$11 Mn and 20 per cent thereafter. A specialised vessel attracts 15 per cent on the first tranche and 25 per cent on the balance. The marginal rate therefore rises with both size and specialisation, which aligns the incentive precisely with the demand analysis in sections 2.3 and 2.5: larger vessels are where replacement demand is concentrated, and specialised vessels are where margin is available. A yard that responds rationally to this rate structure will build the vessels that the market analysis indicates it should build.

Disbursement is phased against construction milestones, with 30 per cent released on keel laying when vessel construction commences, 40 per cent on launch when the vessel is floated out, and 30 per cent on delivery when the completed vessel is handed over to the owner. The phasing is significant beyond its administrative function. Shipbuilding is working capital intensive, with expenditure incurred across a multi-year build against payment terms that are typically back-loaded. By releasing 70 per cent of assistance before delivery, the scheme functions as a working capital bridge rather than solely as a terminal subsidy, which improves the financing profile of each contract.

Assistance is conditioned on domestic content. A vessel with less than 30 per cent domestic content receives no support. Between 30 per cent and 40 per cent, support is pro-rated. At 40 per cent or above, full support applies. This condition is the mechanism by which the scheme guards against a superficial form of success in which Indian yards become assembly points for imported packages, generating tonnage and employment at the yard while leaving the value chain offshore. The threshold connects this pillar directly to the component manufacturing agenda in section 8: unless domestic component capability develops, yards will struggle to clear the 40 per cent threshold and will receive only pro-rated support.

The scheme applies to all vessels built in Indian shipyards, for domestic and export orders alike. This is a material design choice. Restricting assistance to domestic orders would have tied Indian yards to the scale of Indian demand; extending it to exports

permits yards to compete for the international backlog identified in section 2.2, which is where the volume lies.

The Ship Recycling Credit Note: a global first

Within the Shipbuilding Financial Assistance Scheme, the Ship Recycling Credit Note is a distinct instrument and is described in the address as a global first. \$0.44 Bn has been allocated to it, with validity of ten years running from 24 September 2025 to 31 March 2036.

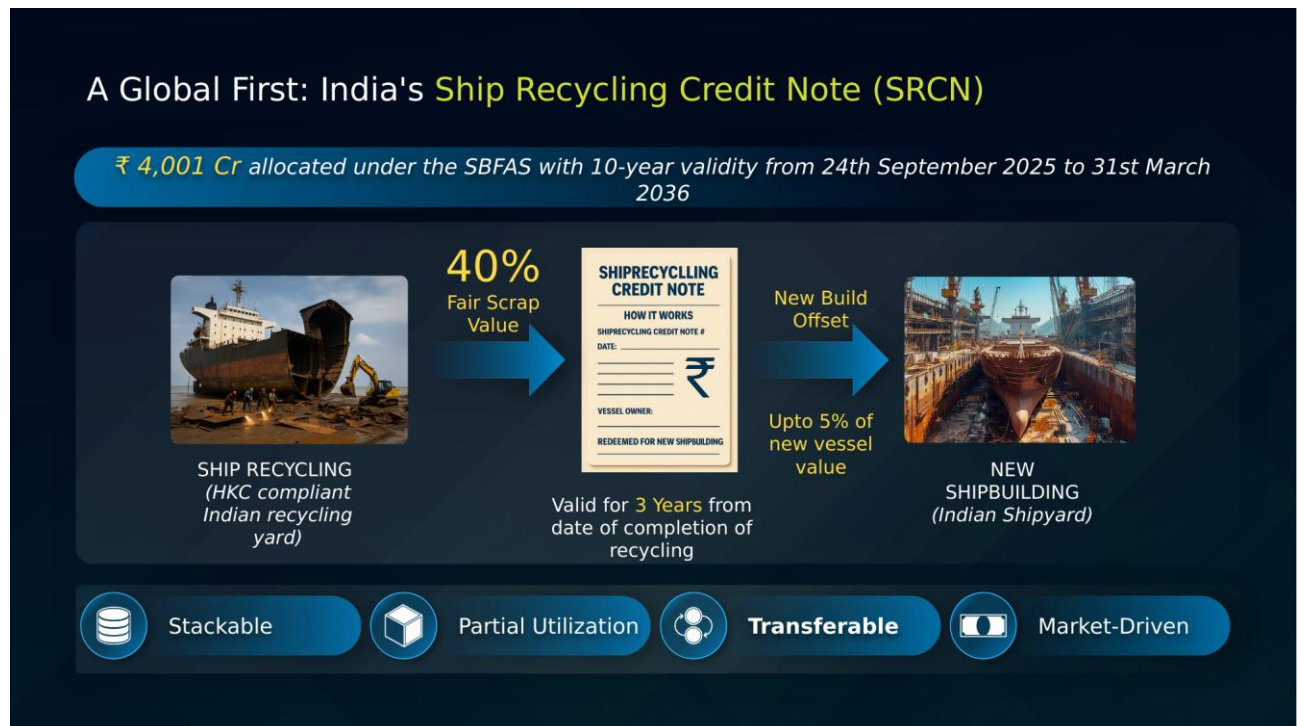


Exhibit 4.3: Structure of the Ship Recycling Credit Note

The mechanism links two activities that have historically been treated as unrelated. When a vessel is recycled at a Hong Kong Convention compliant ship recycling yard in India, the owner becomes entitled to a credit note valued at 40 per cent of the fair scrap value of that vessel. The credit note may then be applied as an offset against the cost of a new vessel built at an Indian shipyard, up to a limit of 5 per cent of the new vessel value.

The instrument carries five design features that materially widen its usefulness. It is valid for three years from the date of completion of recycling, which allows the owner time to place a newbuild order rather than requiring simultaneous transactions. It is stackable, so credit notes from multiple recycled vessels may be combined against a single newbuild. It permits partial utilisation, so a credit note need not be exhausted in one transaction. It is transferable, so an owner who recycles but does not intend to order a new vessel may transfer the entitlement to one who does. And its valuation is market-driven, being derived from published scrap prices rather than from an administratively fixed figure.

The strategic reasoning behind the instrument rests on India's position at both ends of the vessel lifecycle. India is already a leading global destination for ship recycling. It is not yet a significant shipbuilding nation. The credit note converts the established position into support for the aspirational one, by giving the owner of a vessel reaching the end of its life a financial reason to route both the disposal and the replacement through India. The transferability provision is what makes this work in practice, because the population of owners recycling tonnage and the population ordering new tonnage do not fully overlap; without transferability the instrument would only assist owners who happened to be doing both at once.

The requirement that recycling take place at a Hong Kong Convention compliant yard adds a second policy objective. It converts the credit note into an incentive for continued upgrading of Indian recycling yards to international environmental and safety standards, since only compliant yards can generate the entitlement. The instrument therefore advances shipbuilding capacity, recycling standards and lifecycle retention of value within India simultaneously.

Eligibility, valuation and redemption under the SRCN

The operating rules of the credit note are set out across three dimensions: which vessels qualify, how the credit is valued, and on what conditions it may be redeemed.

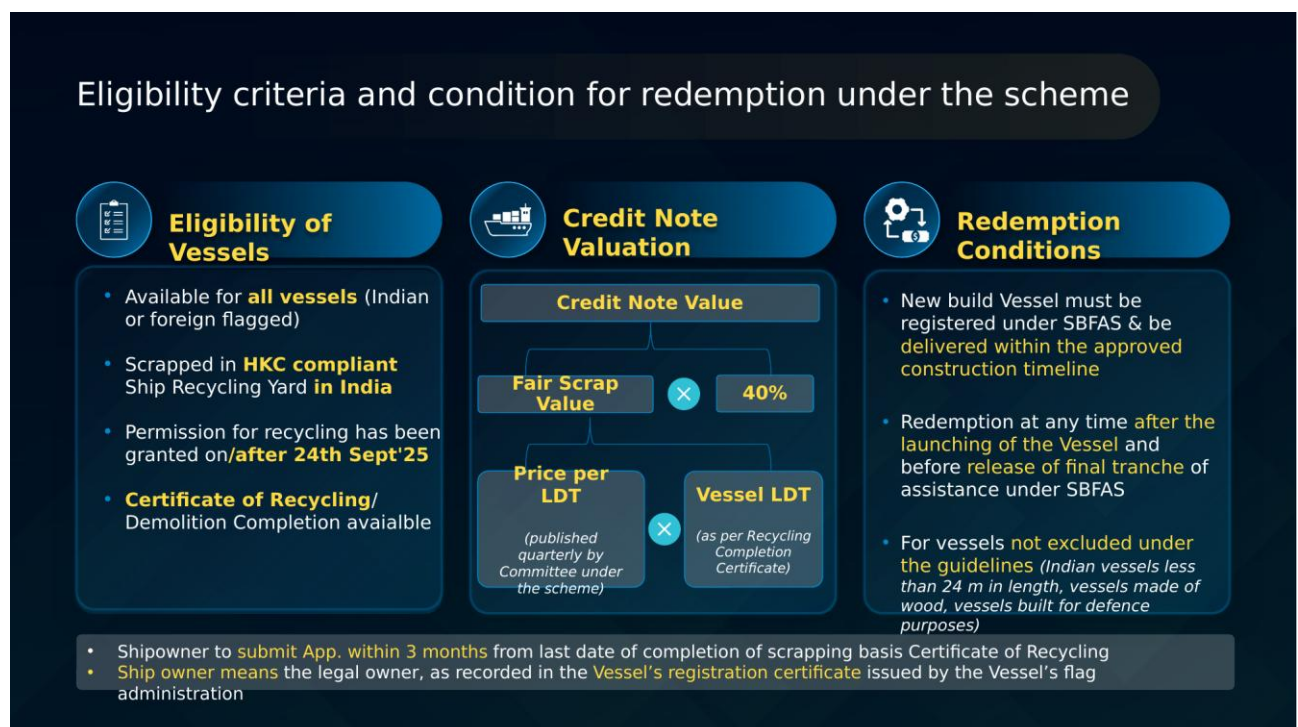


Exhibit 4.4: Eligibility, valuation and redemption conditions under the SRCN

Eligibility on the recycling side. The credit note is available in respect of all vessels, whether Indian or foreign flagged. The vessel must be scrapped at a Hong Kong Convention compliant ship recycling yard in India, permission for recycling must have

been granted on or after 24 September 2025, and a certificate of recycling or demolition completion must be available. The extension to foreign flagged vessels is a significant widening of scope, since it allows the instrument to draw international recycling volumes into Indian yards rather than merely redistributing domestic tonnage.

Eligibility on the newbuild side. The new vessel against which the credit is applied must be registered under the Shipbuilding Financial Assistance Scheme and must be delivered within the approved construction timeline. Certain vessels are excluded, namely Indian vessels of less than 24 metres in length, vessels constructed of wood, and vessels built for defence purposes.

Valuation. The credit note value is 40 per cent of the fair scrap value of the recycled vessel. Fair scrap value is itself the product of two variables: the light displacement tonnage of the vessel as recorded in the recycling completion certificate, and the price per light displacement tonne published quarterly by the committee constituted under the scheme. Anchoring the calculation to a quarterly published price rather than a fixed administrative rate means the entitlement tracks the scrap market, protecting the value of the instrument against price movement in either direction across a ten-year scheme life.

Redemption. Redemption may be effected at any time after the launching of the new vessel and before the release of the final tranche of assistance under the Shipbuilding Financial Assistance Scheme. Since the final tranche represents 30 per cent released on delivery, this defines a redemption window running from float-out to handover. The shipowner must submit the application within three months from the last date of completion of scrapping, on the basis of the certificate of recycling. For these purposes the shipowner means the legal owner as recorded in the vessel registration certificate issued by the flag administration of the vessel.

The three-month application deadline and the launch-to-delivery redemption window together impose a discipline on the instrument. The entitlement must be claimed promptly after recycling, and applied within a defined phase of the newbuild programme. This prevents the accumulation of a large stock of undated credit notes that would create an open-ended contingent liability against the \$0.44 Bn allocation, while the three-year validity still allows sufficient commercial flexibility for an owner to sequence disposal and replacement.

9.5. Pillar 2: Maritime Development Fund

Fund architecture, priority sectors and instruments

The second pillar addresses capital. Shipbuilding is capital intensive, has long gestation, and presents a risk profile that Indian commercial lenders have historically been reluctant to underwrite. The Maritime Development Fund is capitalised at \$2.8 Bn, with budgetary support extending from financial year 2026 to financial year 2036. The contribution of the Government of India is held and managed by the Shipping Maritime Finance Corporation Limited in a fiduciary capacity, within an Alternative Investment Fund structure. Against the public contribution the fund is structured to mobilise private capital, with the indicative split being 49 per cent public and 51 per cent private.

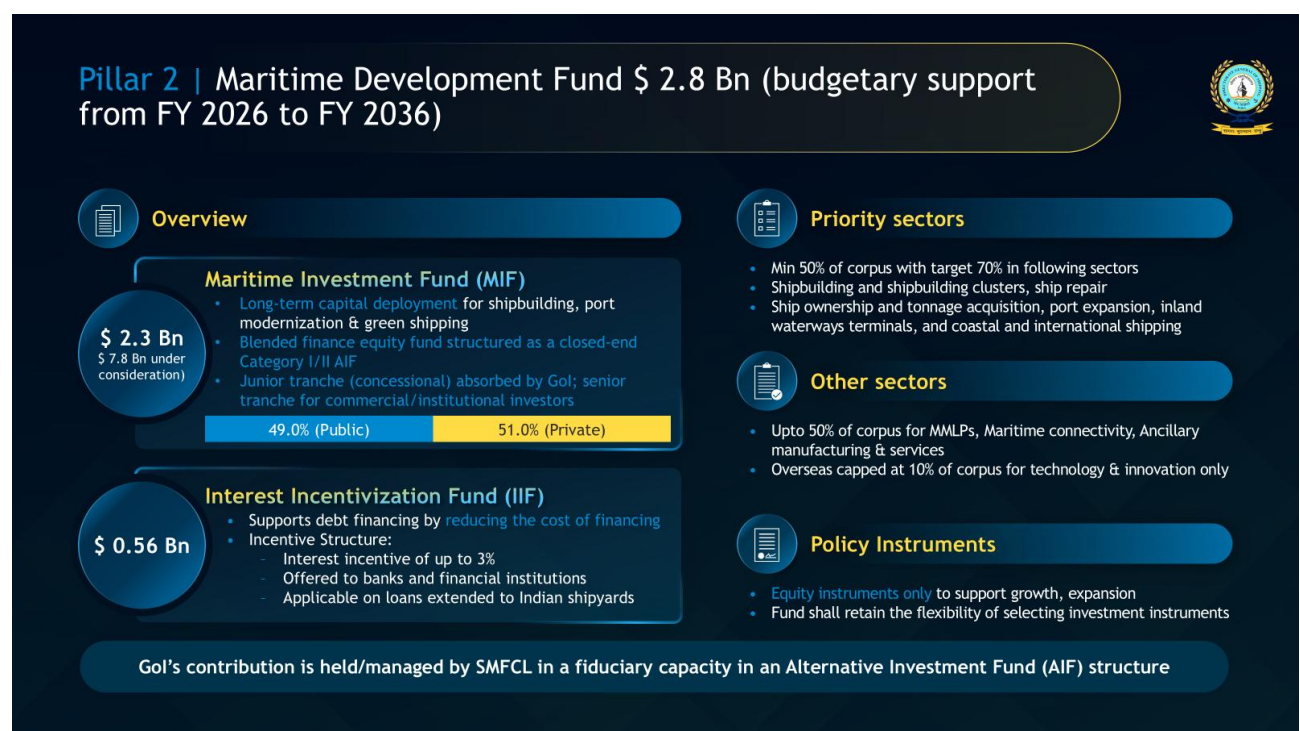


Exhibit 5.1: Maritime Development Fund: structure, sectors and instruments

The fund operates through two distinct sub-instruments addressing equity and debt respectively.

The Maritime Investment Fund, \$2.2 Bn. This is a blended finance equity fund structured as a closed-end Category I or Category II Alternative Investment Fund. Its purpose is long-term capital deployment across shipbuilding, port modernisation and green shipping. The blended structure is the essential feature: the junior tranche, which bears first loss and is therefore concessional, is absorbed by the Government of India, while the senior tranche is offered to commercial and institutional investors. This allocation of risk is what permits the 51 per cent private participation. Institutional investors are not being asked to underwrite the full risk of a nascent shipbuilding sector;

they are being offered a senior position behind a government-funded first loss cushion. Against the \$2.2 Bn committed to the fund, the presentation records a further \$7.8 Bn as being under consideration, which indicates the scale of investment the instrument is ultimately intended to mobilise.

The Interest Incentivization Fund, \$0.56 Bn. This instrument addresses the cost rather than the availability of debt. It provides an interest incentive of up to 3 per cent, offered to banks and financial institutions and applicable on loans extended to Indian shipyards. Its function is to reduce the effective cost of financing and thereby support debt provision to the sector. At an incentive of up to 3 per cent, a \$0.56 Bn allocation can support a considerably larger stock of underlying debt, which is the leverage the instrument is designed to achieve.

Deployment of the corpus is governed by sectoral rules. A minimum of 50 per cent of the corpus, with a target of 70 per cent, is to be deployed in priority sectors. These comprise shipbuilding and shipbuilding clusters and ship repair; and ship ownership and tonnage acquisition, port expansion, inland waterways terminals, and coastal and international shipping. Up to 50 per cent of the corpus may be deployed in other sectors, comprising multimodal logistics parks, maritime connectivity, and ancillary manufacturing and services. Overseas deployment is capped at 10 per cent of the corpus and is confined to technology and innovation.

On policy instruments, the fund is to use equity instruments to support growth and expansion, while retaining flexibility in the selection of investment instruments. The combination of a stated minimum for priority sectors and a higher target creates a governance structure in which the fund is bound to concentrate on shipbuilding and adjacent maritime activity while retaining the latitude to deploy across the wider ecosystem where that supports the primary objective. The narrow overseas allowance confined to technology and innovation is consistent with the technology transfer logic underlying the anchor partnership approach described in section 2.5.

9.6. Pillar 3: Shipbuilding Development Scheme

Scheme composition and allocation of \$2.2 Bn

The third pillar addresses physical capacity. Favourable unit economics and available capital are of no consequence if there is no yard capable of building vessels of the size and complexity the market requires. The Shipbuilding Development Scheme is allocated \$2.2 Bn with a validity of ten years, running until 31 March 2036.



Exhibit 6.1: Shipbuilding Development Scheme: allocation by component

Component	Allocation
Capital support for greenfield capacity expansion	\$1,110 Mn
Capital assistance to existing and brownfield shipyards towards expansion of production capacity	\$917 Mn
Shipbuilding risk coverage: pre-shipment insurance, post-shipment insurance and vendor default insurance	\$160 Mn
Capability development initiatives, including establishment of the India Ship Technology Centre	\$34 Mn
Administrative expenses	\$5 Mn
Total	\$2.2 Bn

Table 6.1: Allocation of the Shipbuilding Development Scheme by component

The allocation reveals the strategic balance the scheme strikes. Greenfield and brownfield together account for \$2,027 Mn, or approximately 91 per cent of the total, so the scheme is overwhelmingly a capacity creation instrument. Within that, greenfield receives \$1,110 Mn and brownfield \$917 Mn, a near-even division that reflects a considered choice: neither approach alone is sufficient.

The reasoning is one of timing. Greenfield clusters can be designed from the outset for the large vessels that section 2.3 identifies as the growth segment, unconstrained by the dimensions of legacy facilities, but they take years to build. Brownfield expansion at existing yards can deliver incremental capacity considerably faster, because the yard, workforce and supply relationships already exist, but it is bound by the physical envelope of the site. Funding both allows near-term capacity to come from brownfield expansion while the greenfield clusters are under construction, which matters given the cyclical window discussed in section 2.2.

The \$160 Mn for risk coverage is small in proportion but addresses a specific market failure. Pre-shipment, post-shipment and vendor default insurance cover the risks that make shipbuilding contracts difficult to finance: that the yard fails to complete, that the buyer fails to take delivery, or that a critical supplier defaults. In the absence of such cover, lenders price these risks into the cost of debt or decline the exposure altogether. Providing the cover from public funds is a more capital-efficient intervention than subsidising the resulting interest cost.

The \$34 Mn for capability development, principally the India Ship Technology Centre, addresses the design and engineering capability that section 2.5 identifies as a binding constraint. The sum is modest relative to the scheme total but is directed at the element least amenable to purchase. Physical capacity can be built and capital can be raised; design and production engineering competence accumulates through practice and institutional continuity.

Greenfield clusters: objective, structure and conditions

The greenfield component is the more ambitious half of the Shipbuilding Development Scheme, and its design reflects the conclusion that India requires not simply new shipyards but complete industrial ecosystems around them.

Key highlight and components funded by the SBDS Greenfield scheme

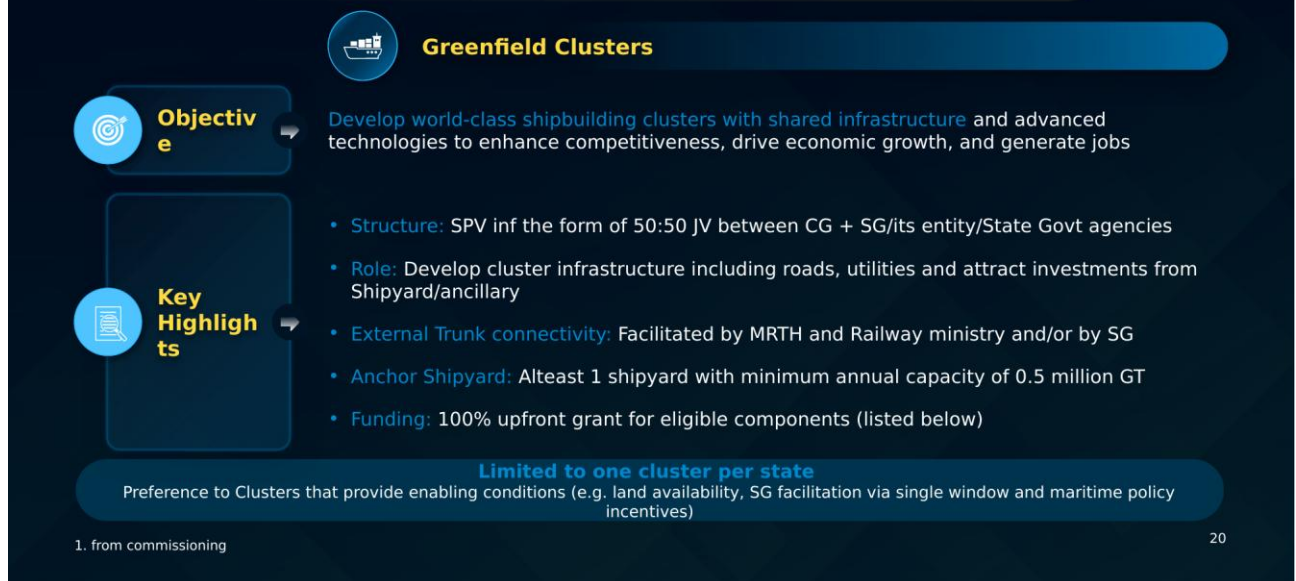


Exhibit 6.2: Greenfield cluster scheme: objective and key highlights

The stated objective is to develop world-class shipbuilding clusters with shared infrastructure and advanced technologies, in order to enhance competitiveness, drive economic growth and generate employment. The choice of a cluster model rather than standalone yards follows from the economics of shipbuilding. A yard depends on a tier of component suppliers, on block fabrication capacity, on heavy lift and marine support assets, and on a resident workforce. Where these are co-located, shared assets are used efficiently and connectivity infrastructure serves multiple users. Where a yard stands alone, each of these must be duplicated or procured at distance.

Institutional structure. Each cluster is developed by a Special Purpose Vehicle constituted as a 50:50 joint venture between the Central Government and the State Government or their respective entities or agencies. The Special Purpose Vehicle develops the cluster infrastructure, including internal roads and utilities, and is responsible for attracting investment from shipyards and ancillary industry. The joint venture structure aligns the two levels of government whose cooperation the project requires: the Centre brings the capital assistance, and the State brings land, clearances and policy facilitation.

External connectivity. Trunk connectivity beyond the cluster boundary is facilitated by the Ministry of Road Transport and Highways and the Ministry of Railways, and by the State Government. This is a deliberate allocation of responsibility. A cluster is only as useful as its links to the hinterland from which components, steel and labour arrive, and those links lie outside the remit of the Special Purpose Vehicle.

Anchor shipyard requirement. Each cluster must have at least one anchor shipyard with a minimum annual capacity of 0.5 million gross tonnes. This is the single most consequential condition in the scheme. It ensures that the cluster is built around a yard of genuine scale rather than an aggregation of small operators, and it is calibrated to the vessel size analysis in section 2.3. A yard of 0.5 million gross tonnes annual capacity is capable of building the large tonnage in which replacement demand is concentrated.

Funding. The scheme provides a 100 per cent upfront grant for eligible components, which are enumerated in section 6.3. Full central funding of common infrastructure removes from the anchor investor the cost that is hardest to justify commercially, since breakwaters and dredged channels are shared assets whose benefit cannot be fully appropriated by any single user.

Selection conditions. Support is limited to one cluster per state, with preference accorded to clusters that provide enabling conditions, including availability of land, State Government facilitation through a single window mechanism, and maritime policy incentives. The one-cluster-per-state limit prevents dilution of the allocation across too many sites, while the preference criteria create competitive pressure among states to improve their offer. Section 6.5 shows this operating in practice.

Common maritime infrastructure funded by the Centre

The 100 per cent upfront grant applies to five categories of common infrastructure, all of which are developed by the Special Purpose Vehicle and held for shared use across the cluster.



Exhibit 6.3: The five categories of common infrastructure funded under the greenfield scheme

- Breakwaters, tide-independent basins and wave breakers. These provide the sheltered water without which vessel construction, launch and outfitting cannot proceed reliably through the year, and they are the classic instance of infrastructure whose cost no single yard can carry alone.
- Channel and basin development, comprising capital dredging, land reclamation, area grading and turning basins. This determines the maximum vessel size the cluster can physically handle, and therefore directly governs whether the site can serve the large-vessel demand identified in section 2.3.
- Regional shipbuilding capability development centres, providing skill training, research and development, green shipbuilding technology and certification facilities. These address the workforce and technology constraint at cluster level rather than leaving each yard to solve it independently.
- Common maritime assets, comprising shared floating cranes, barges, tugs and auxiliary marine craft serving the cluster. Such assets are registered under the Special Purpose Vehicle and used collectively for heavy lift, transport, assembly and vessel movement, and are admissible only as common-use cluster infrastructure approved by the National Shipbuilding Mission.
- Internal infrastructure, utilities and land development, including site development, rail and road connectivity within the cluster, utilities such as water supply, power distribution, drainage and firefighting systems, and social infrastructure including medical and dining facilities.

Funding is backed by 100 per cent upfront capital assistance and governed through milestone-linked release of funds with independent monitoring. The Special Purpose Vehicle oversees cluster-wise development and commences construction of the common structures. Certain items are explicitly excluded from the grant, namely the human resources of the Special Purpose Vehicle, operations and maintenance expenditure, maintenance dredging, and the cost of land, which is instead transferred to the Special Purpose Vehicle by the State Government at a nominal consideration of one rupee.

The exclusions are as instructive as the inclusions. By funding capital creation but not operation and maintenance, the scheme requires each Special Purpose Vehicle to establish a revenue model, principally through lease rentals from the anchor shipyard and ancillary units, sufficient to sustain the asset base it has been given. This is a deliberate guard against the creation of publicly funded infrastructure that subsequently deteriorates for want of a maintenance income.

Cluster locations and site characteristics

Five cluster locations across five coastal states are presently envisaged. Their physical characteristics are set out below.

Multiple shipbuilding clusters in India envisioned across strategic locations

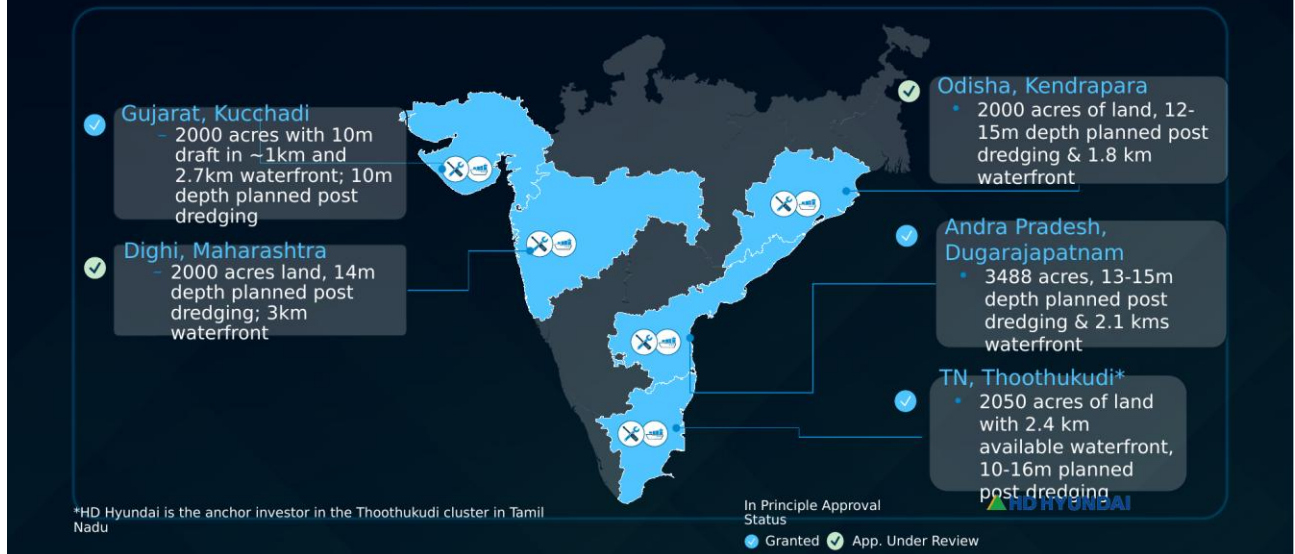


Exhibit 6.4: Envisaged shipbuilding cluster locations across coastal states

State and location	Land area	Planned depth post-dredging	Waterfront
Andhra Pradesh, Dugarajapatnam	3,488 acres	13 to 15 metres	2.1 km
Tamil Nadu, Thoothukudi	2,050 acres	10 to 16 metres	2.4 km
Odisha, Kendrapara	2,000 acres	12 to 15 metres	1.8 km
Maharashtra, Dighi	2,000 acres	14 metres	3.0 km
Gujarat, Kucchadi	2,000 acres	10 metres	2.7 km

Table 6.2: Site characteristics of the envisaged shipbuilding clusters

The sites are broadly comparable in scale, at 2,000 acres or more, with Dugarajapatnam the largest at 3,488 acres. Planned depths after dredging range from 10 to 16 metres and waterfronts from 1.8 to 3 kilometres. These parameters are consistent with the requirement to build vessels above 100 metres in length overall and above 10,000 deadweight tonnes, which section 2.3 identified as the growth segment of the market. The Gujarat site at Kucchadi is noted as presently offering a 10 metre draft over approximately one kilometre, with 10 metre depth planned after dredging.

The geographic distribution across the eastern seaboard at Dugarajapatnam and Kendrapara, the western seaboard at Dighi and Kucchadi, and the southern tip at Thoothukudi is strategically deliberate. It positions capacity to serve distinct trade routes,

spreads exposure to weather and cyclone risk, and distributes the industrial and employment benefit across five coastal states, which supports the political sustainability of a programme spanning a decade.

HD Hyundai is recorded as the anchor investor in the Thoothukudi cluster in Tamil Nadu. This is a material development in relation to the analysis in section 2.5, which identified anchor partnerships with Korean original equipment manufacturers as the route to large conventional vessel capability and named HD Hyundai specifically. The commitment demonstrates that the anchor investor model is attracting participation from precisely the class of partner the strategy contemplates, rather than remaining an aspiration.

On in-principle approval status, the presentation distinguishes between clusters where approval has been granted and those where the application remains under review. The state-level position is set out in section 6.5.

State readiness and institutional preparedness

The greenfield model depends on state-level execution, since the State Government provides land, clearances and fiscal incentives, and holds half the equity of the Special Purpose Vehicle. The presentation therefore assesses readiness across the five participating states along four dimensions: the status of the Special Purpose Vehicle, availability of the Techno Economic Feasibility Report, in-principle approval, and state policy.

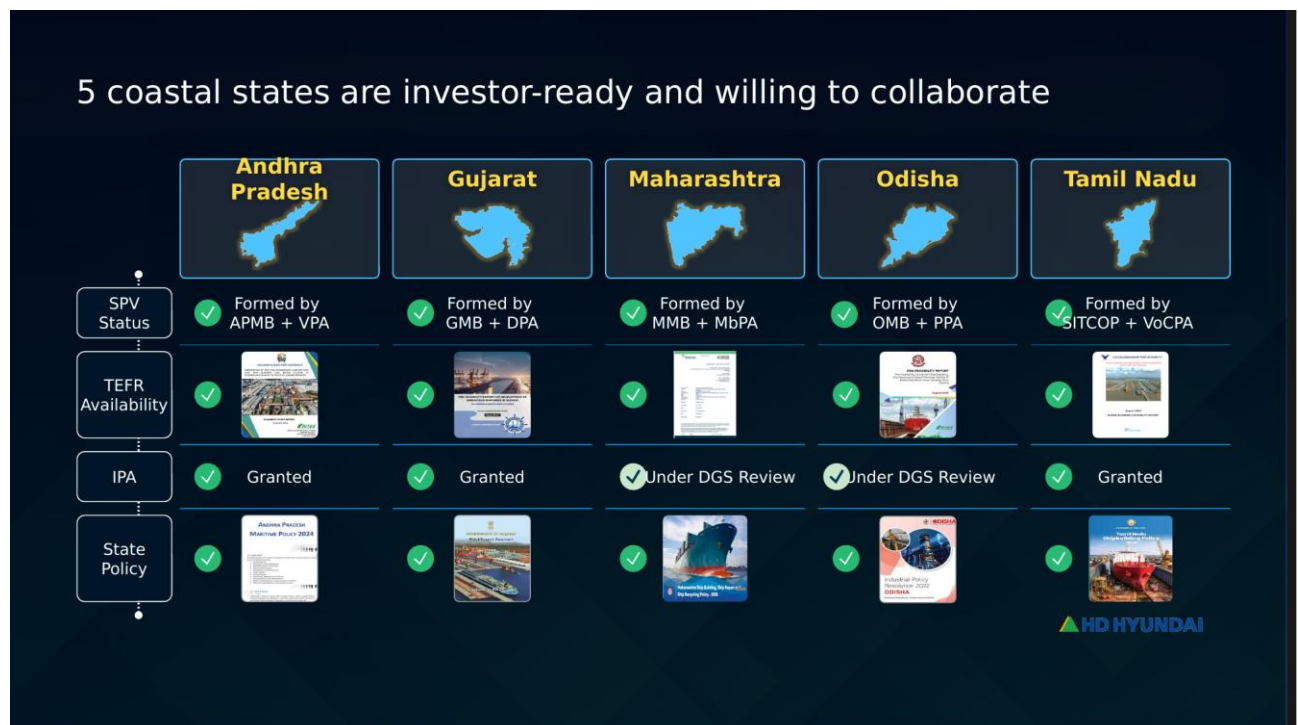


Exhibit 6.5: Readiness of the five participating coastal states

State	Special Purpose Vehicle constituted by	In-principle approval
Andhra Pradesh	Andhra Pradesh Maritime Board and Visakhapatnam Port Authority	Granted
Gujarat	Gujarat Maritime Board and Deendayal Port Authority	Granted
Tamil Nadu	SITCOP and V.O. Chidambaranar Port Authority	Granted
Maharashtra	Maharashtra Maritime Board and Mumbai Port Authority	Under review by the DGMA
Odisha	Odisha Maritime Board and Paradip Port Authority	Under review by the DGMA

Table 6.3: Special Purpose Vehicle composition and approval status by state

All five states have constituted their Special Purpose Vehicles, and in each case the vehicle pairs the State Maritime Board with a major port authority. This is a well-judged pattern. The State Maritime Board brings state jurisdiction over land, coastal regulation and state policy; the port authority brings marine engineering capability, existing waterfront assets and experience of operating regulated marine infrastructure. Neither institution alone possesses the full range of competence required.

In-principle approval has been granted for Andhra Pradesh, Gujarat and Tamil Nadu. The applications of Maharashtra and Odisha remain under review by the Directorate General of Shipping. Three of five clusters have therefore cleared the first regulatory gate. The description of all five states as investor-ready and willing to collaborate, taken with the fact that every Special Purpose Vehicle has been constituted, indicates that the constraint at this stage is regulatory processing rather than state-level willingness.

The Techno Economic Feasibility Report is the analytical foundation on which in-principle approval rests. Each report assesses technical suitability, environmental sustainability and financial viability of the proposed site. Priority is accorded to sites where land is available, where preliminary statutory and environmental clearances including environmental clearance, coastal regulation zone clearance, safety and port clearances have been secured, and where implementation readiness can be demonstrated. Feasibility work has been completed for the principal sites, including Dugarajapatnam in Andhra Pradesh, Kendrapara in Odisha, Kucchadi in Gujarat and Thoothukudi in Tamil Nadu.

The brownfield capacity expansion scheme

The second component of the Shipbuilding Development Scheme, allocated \$917 Mn, supports capacity expansion at existing Indian shipyards. Its purpose is to facilitate

capacity augmentation, modernisation and technological upgradation in order to enhance competitiveness and efficiency.

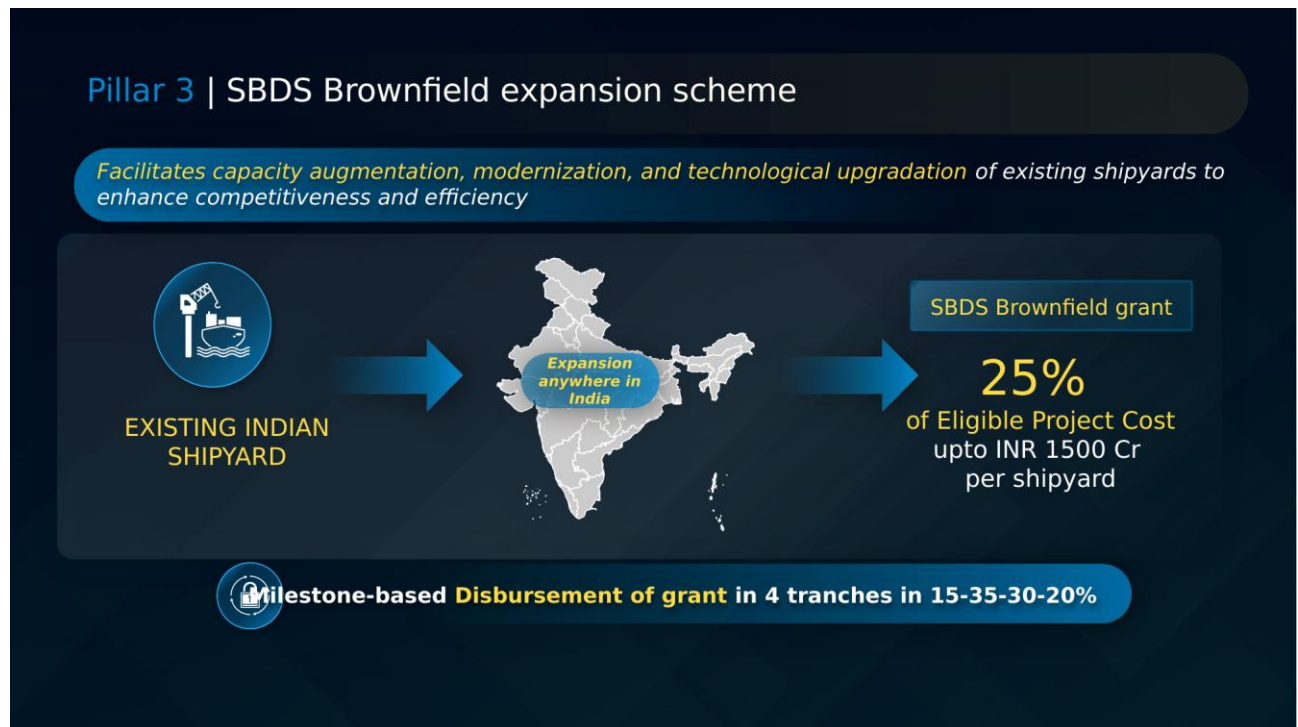


Exhibit 6.6: The brownfield expansion scheme: support structure

The grant covers 25 per cent of eligible project cost, subject to a ceiling of \$167 Mn, or Rs. 1,500 crore, per shipyard, and expansion may be undertaken anywhere in India. Disbursement is milestone based, released in four tranches of 15 per cent, 35 per cent, 30 per cent and 20 per cent.

Three features of this design merit comment. The first is the choice of a 25 per cent grant rather than fuller support. Unlike greenfield common infrastructure, brownfield expansion creates assets whose benefit accrues wholly to the shipyard that owns them. A minority public contribution is therefore appropriate: it improves project returns sufficiently to trigger investment decisions that would otherwise be deferred, while requiring the yard to commit the majority of the capital and thereby retain the commercial discipline of its own exposure.

The second is the per-shipyard ceiling of \$167 Mn. Against an allocation of \$917 Mn, the ceiling ensures that support is distributed across a number of yards rather than concentrated in one or two very large projects. It also implies a maximum supported project size of \$667 Mn, at which point the 25 per cent grant reaches the cap.

The third is the milestone-linked tranche profile, which is deliberately back-weighted in its early stages. Only 15 per cent is released at the first milestone, rising to 35 per cent at the second. This protects public funds against projects that commence but do not progress, while ensuring that the substantial releases occur once execution is

demonstrably underway. The pattern differs from the Shipbuilding Financial Assistance Scheme, where 70 per cent is released before delivery to serve as a working capital bridge. The distinction is appropriate: vessel construction under a signed contract carries a defined counterparty and delivery obligation, whereas capacity expansion carries execution risk against no external commitment.

Eligible and excluded components for brownfield support

The scheme enumerates the facilities eligible for brownfield capital assistance, together with an explicit list of exclusions.

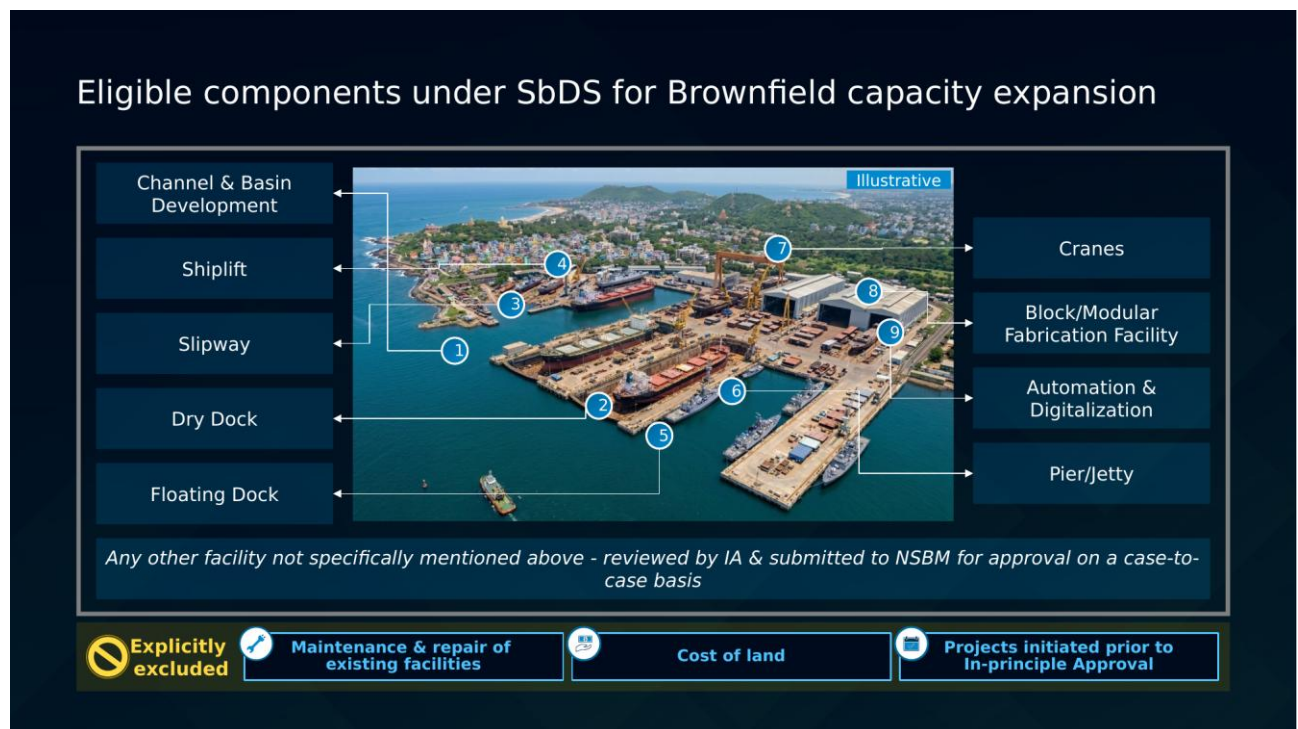


Exhibit 6.7: Eligible and excluded components under the brownfield scheme

The eligible components comprise dry docks, floating docks, slipways, shiplifts, piers and jetties, channel and basin development, block and modular fabrication facilities, cranes, and automation and digitalisation. Any other facility not specifically listed may be considered, subject to review by the implementing agency and submission to the National Shipbuilding Mission for approval on a case-to-case basis.

The composition of this list reflects a coherent view of what constrains an existing yard. Dry docks, floating docks, slipways and shiplifts determine the size of vessel a yard can accommodate and the number it can handle simultaneously. Channel and basin development determines the draft of vessel that can reach the yard at all. Piers and jetties determine outfitting capacity, which is frequently the binding constraint on throughput once hull construction capacity has been expanded. Cranes determine the weight of block that can be lifted, and therefore the degree of pre-outfitting achievable before erection, which is one of the principal determinants of build efficiency. Block and

modular fabrication facilities support the modular construction methods used by competitive international yards. Automation and digitalisation address productivity per worker.

Three items are explicitly excluded: maintenance and repair of existing facilities, projects initiated prior to in-principle approval, and the cost of land. Each exclusion is purposeful. Excluding maintenance ensures that the scheme funds additional capability rather than the upkeep a yard should fund from operations. Excluding projects initiated before in-principle approval ensures that the grant influences investment decisions rather than rewarding those already taken, which is the standard test of whether a subsidy is additional. Excluding land cost avoids the scheme becoming a vehicle for real estate acquisition, and mirrors the equivalent exclusion under the greenfield component.

The brownfield project pipeline

The brownfield component has generated a substantial pipeline. Four in-principle approvals have been issued, one application is under review, and three or more further applications are anticipated. Across eleven identified projects, the presentation records total applications of approximately \$944 Mn, equivalent to about Rs. 8,500 crore as shown on the slide, of which approximately \$239 Mn has received in-principle approval and approximately \$706 Mn is expected from seven shipyards.

4 IPAs issued, 1 app. under review with 3+ apps incoming

~₹8,000 crore Brownfield upgrade opportunities identified across eight 11 projects

	Shipyard	Investment (₹ crore)	Likely submission	Remarks/Project description
1	Titagarh Naval Systems (TNSL)	516	IPA granted	New yard at Falta, 10-12 vessels upto 160m/yr
2	Swan Defence (SDHI)	504	IPA granted	Ph1: Goliath Crane & ELL Crane
			Q4 2026	Ph2: Outfitting workshop & robotics/fabrication
3	Mat Marine	105	IPA granted	SB/SR Infra incl. slipways for +1000 GT/yr
4	Cochin Shipyard limited	920	IPA granted	Ship repair facility at Vadinar along with DPA
		35	App. Submitted	Upgradation of Mangalore facility
5	Synergy Shipbuilders N Dock Works Ltd	110-120 500-550		Upgradation of machine shops, installation of cranes and Shiplift
7	Shoft Shipyard Pvt Ltd	400-500		
7	Chowgule SBD Pvt Ltd	1,500-1,600		DD+ Slipway - from 10,000 to 25,000 DWT
8	L & T Shipbuilding Ltd	—		DPR under preparation, evaluation stage
9	Mandovi Drydocks Ltd	40, 10, 100, 50, 100, 250, 350		Expansion plan at 7 different locations
10	Square Port Shipyard Pvt Ltd	650 (Phase 1) 2,000 (Phase 2)		Ph1: Installation of floating transfer dock & 265 m jetty to handle ships up to 200 m
11	Knowledge Marine & Eng.Works	240-250		DPR under preparation
Total applications worth ~₹8,500 Cr, ~ ₹ 2150 IPA granted and ₹ 6350 apps. expected from 7 Shipyards				

Exhibit 6.8: The brownfield project pipeline by shipyard

Shipyard	Investment (\$ Mn)	Status	Project description
Titagarh Naval Systems	57	IPA granted	New yard at Falta, 10 to 12 vessels up to 160 m per year
Swan Defence	56	IPA granted	Phase 1: Goliath crane and ELL crane
Swan Defence (Phase 2)	To be submitted Q4 2026	Expected	Phase 2: outfitting workshop and robotics or fabrication
Mat Marine	12	IPA granted	Shipbuilding and ship repair infrastructure including slipways for over 1,000 GT per year
Cochin Shipyard	102	IPA granted	Ship repair facility at Vadinar with Deendayal Port Authority
Synergy Shipbuilders N Dock Works	4	Application submitted	Upgradation of Mangalore facility
Continuation of the above	12 to 13 and 56 to 61	Expected	Upgradation of machine shops, installation of cranes and shiplift
Shoft Shipyard	44 to 56	Expected	Not specified in the source
Chowgule SBD	167 to 178	Expected	Dry dock and slipway, from 10,000 to 25,000 DWT
L and T Shipbuilding	Not stated	Expected	Detailed project report under preparation, at evaluation stage
Mandovi Drydocks	4, 1, 11, 6, 11, 28 and 39	Expected	Expansion plan across seven different locations
Square Port Shipyard	72 (Phase 1) and 222 (Phase 2)	Expected	Phase 1: floating transfer dock and 265 m jetty for ships up to 200 m
Knowledge Marine and Engineering Works	27 to 28	Expected	Detailed project report under preparation

Table 6.4: Brownfield pipeline: shipyards, investment and status

The four projects that have secured in-principle approval, namely Titagarh Naval Systems, Swan Defence, Mat Marine and Cochin Shipyard, together represent approximately \$227 Mn of investment. Their character illustrates the range of the scheme. Titagarh Naval Systems is establishing a new yard at Falta with capacity for 10 to 12 vessels of up to 160 metres a year, which is a substantial addition to Indian capability for mid-sized tonnage. Swan Defence is proceeding in phases, beginning with heavy lift craneage before moving to outfitting and automation. Mat Marine is a smaller intervention addressing slipway capacity. Cochin Shipyard is developing a ship repair

facility at Vadinar in partnership with Deendayal Port Authority, which extends the scheme beyond construction into repair.

The prospective pipeline is more ambitious in scale. Chowgule SBD proposes to raise capability from 10,000 to 25,000 deadweight tonnes, which is a step change in vessel size directly aligned with the analysis in section 2.3. Square Port Shipyard proposes a two-phase development, with Phase 1 comprising a floating transfer dock and a 265 metre jetty capable of handling ships up to 200 metres. Mandovi Drydocks proposes expansion across seven locations. Several applicants, including L and T Shipbuilding and Knowledge Marine and Engineering Works, have detailed project reports under preparation.

Two observations follow. First, the pipeline is geographically dispersed across the eastern and western coasts, which is consistent with the greenfield distribution and reinforces the resilience of the overall capacity build. Second, the aggregate pipeline of approximately \$944 Mn in project investment would attract grant support of approximately 25 per cent, or roughly \$233 Mn, against an allocation of \$917 Mn. The brownfield allocation is therefore not close to being exhausted by the current pipeline, and considerable headroom remains for further applications. Readers should note that the source slide states the total pipeline as approximately \$889 Mn in its heading and approximately \$944 Mn in its footnote; this note uses the latter, which is consistent with the stated split between approved and expected amounts. The point is recorded in section 11.

9.7. Demand Aggregation

The domestic fleet expansion plan

Capacity without orders is a liability rather than an asset. A yard commissioned into an empty order book cannot retain its workforce, service its debt or descend the learning curve on which competitiveness depends. The fourth element of the programme therefore addresses demand directly, by consolidating the tonnage requirements of public sector entities into a visible and time-bound pipeline. The demand aggregation plan was launched in December 2025 and is described in the address as marking a decisive acceleration in India's shipbuilding push.

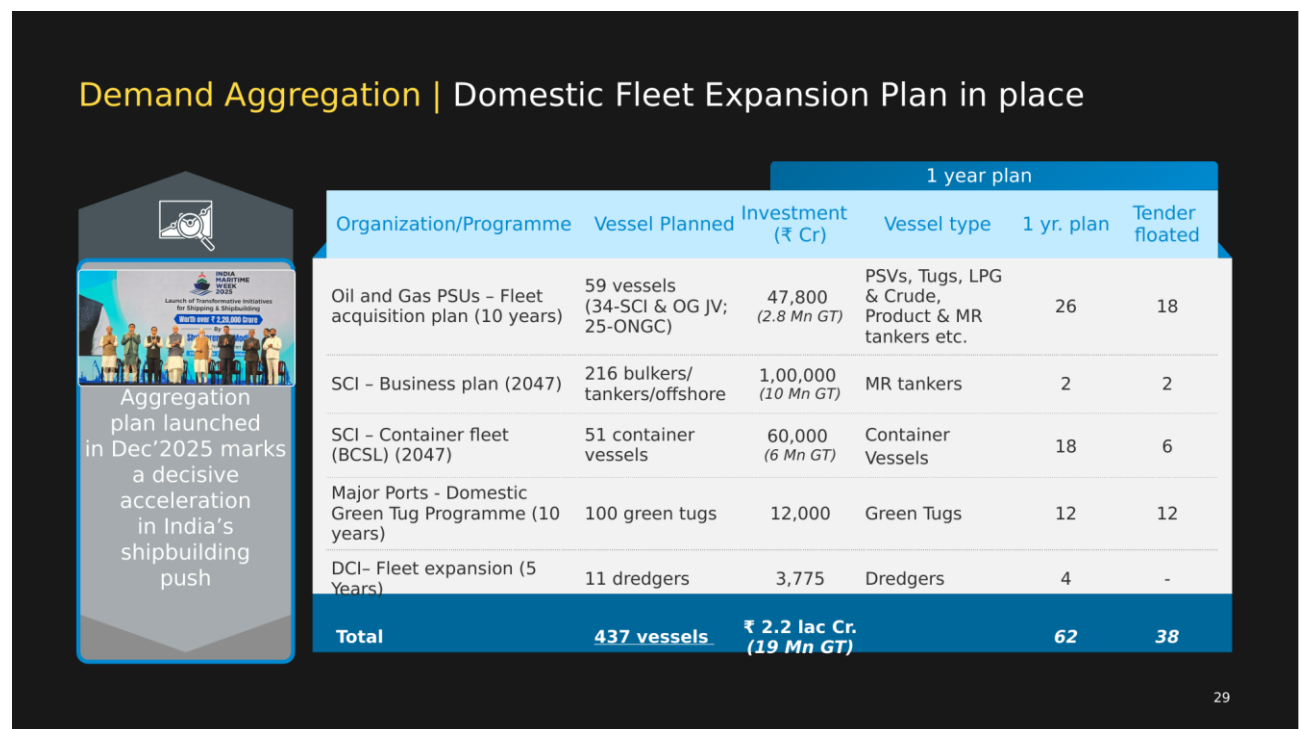


Exhibit 7.1: The domestic fleet expansion plan by organisation and programme

Organisation and programme	Vessels planned	Investment (\$ Bn)	One year plan	Tendered
Oil and gas public sector undertakings, fleet acquisition plan over 10 years	59 vessels (34 with SCI and oil and gas joint venture; 25 with ONGC)	5.3 (2.8 million GT)	26	18
Shipping Corporation of India, business plan to 2047	216 bulkers, tankers and offshore vessels	11.1 (10 million GT)	2	2
Shipping Corporation of India, container fleet through BCSL, to 2047	51 container vessels	6.7 (6 million GT)	18	6

Organisation and programme	Vessels planned	Investment (\$ Bn)	One year plan	Tendered
Major ports, Domestic Green Tug Programme over 10 years	100 green tugs	1.3	12	12
Dredging Corporation of India, fleet expansion over 5 years	11 dredgers	0.4	4	Nil
Total	437 vessels	Approximately 24.8 (19 million GT)	62	38

Table 7.1: Domestic fleet expansion plan: vessels, investment and tendering status

The aggregate plan comprises 437 vessels representing approximately \$24.8 Bn of investment, equivalent to about Rs. 2.2 lakh crore as shown on the slide, and 19 million gross tonnes. To place this in proportion, the investment is more than three times the entire approximately \$7.8 Bn public outlay across the four pillars. The demand side of the programme is therefore substantially larger in financial terms than the supply side support, which is as it should be: public funds are being used to make domestic construction viable, while the orders themselves are commercial procurement by entities that require the tonnage in any event.

The composition of the plan is instructive. The Shipping Corporation of India accounts for the largest element, with 216 bulkers, tankers and offshore vessels under its business plan to 2047 at approximately \$11.1 Bn and 10 million gross tonnes, together with 51 container vessels through Bharat Container Shipping Limited at approximately \$6.7 Bn and 6 million gross tonnes. The oil and gas public sector undertakings account for 59 vessels at approximately \$5.3 Bn and 2.8 million gross tonnes, comprising 34 vessels with the Shipping Corporation of India and an oil and gas joint venture and 25 with the Oil and Natural Gas Corporation, spanning platform supply vessels, tugs, liquefied petroleum gas carriers, crude carriers, product tankers and medium range tankers. Major ports account for 100 green tugs at approximately \$1.3 Bn under the Domestic Green Tug Programme, and the Dredging Corporation of India for 11 dredgers at approximately \$0.42 Bn.

The vessel mix maps closely onto the demand analysis in section 2.4. Tankers, bulkers and general cargo tonnage dominate the volume, which corresponds to the categories where global replacement demand is concentrated. Tugs and dredgers, which together account for 111 vessels, correspond to categories where the ageing fleet is large and where Indian yards already possess relevant experience at smaller vessel sizes. Container vessels represent a newer capability. The plan therefore provides both a volume base in familiar categories and a route into more demanding tonnage.

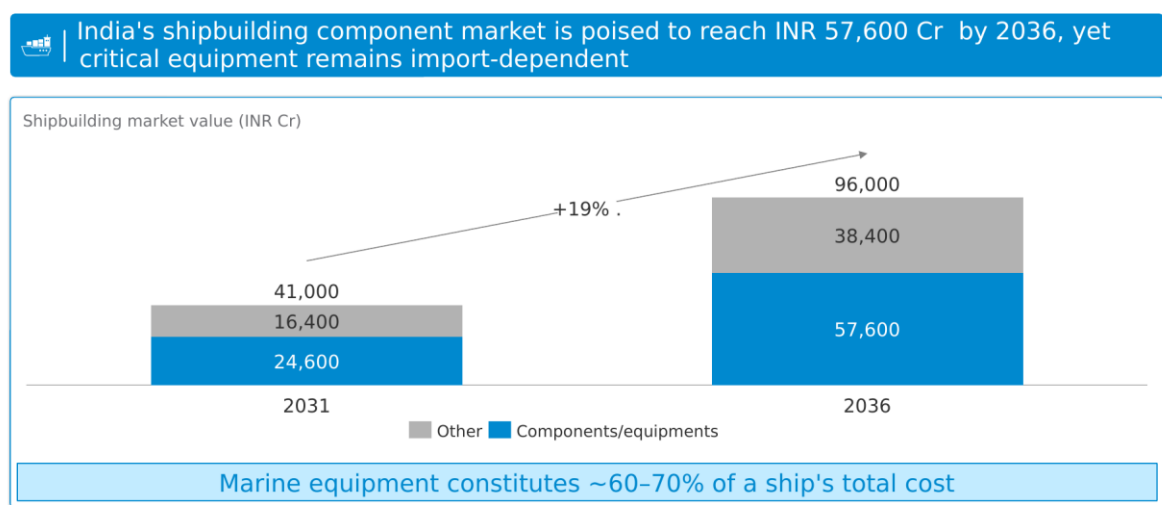
The most important columns of the table are the last two. Of the 437 vessels in the total programme, 62 fall within the one year plan and 38 have already been tendered or floated. This is the difference between an aspiration and a pipeline. The Domestic Green Tug Programme has tendered all 12 vessels in its one year plan, and the oil and gas programme has tendered 18 of 26. The Dredging Corporation of India has four vessels in its one year plan with none yet tendered. That 38 vessels are already in the market provides Indian yards with immediate, contestable order flow rather than a prospective commitment, which is what allows brownfield expansion decisions under section 6.6 to be taken on a commercial basis now.

9.8. Ship Component Manufacturing

The component market and the import dependence problem

The preceding sections address the capacity to build vessels and the orders to fill that capacity. This section addresses what those vessels will be built from. It is the element of the programme with the greatest bearing on whether Indian shipbuilding generates domestic industrial value or becomes an assembly operation for imported packages.

Context | Shipbuilding Component Market



31

Exhibit 8.1: The Indian shipbuilding component market to 2036

The Indian shipbuilding market is projected to grow from approximately \$4.6 Bn in 2031 to approximately \$10.7 Bn in 2036, equivalent to Rs. 41,000 crore and Rs. 96,000 crore respectively as shown on the slide, a compound rate of approximately 19 per cent a year. Within this, the component and equipment segment is projected to grow from approximately \$2.7 Bn to approximately \$6.4 Bn over the same period.

The reason components command this share is that marine equipment constitutes approximately 60 to 70 per cent of the total cost of a ship. The hull, which is what a shipyard visibly produces, accounts for a minority of vessel value. The majority resides in the propulsion system, the auxiliary machinery, the electrical systems, the navigation and communication suite and the accommodation fit-out. A country that builds hulls but imports systems captures the smaller part of the value it appears to be creating.

This is precisely the position India currently occupies, and it is why the domestic content threshold in the Shipbuilding Financial Assistance Scheme, described in section 4.1, is set at 40 per cent with no support below 30 per cent. That threshold is not achievable

through hull fabrication and labour alone at scale; it requires domestic sourcing of equipment. The component agenda and the vessel assistance agenda are therefore mutually dependent. Absent domestic component capability, yards will find the 40 per cent threshold difficult to clear and will receive only pro-rated assistance. Absent yard demand at scale, component manufacturers lack the volume to justify investment in capability and certification. The schemes described in this section are intended to resolve that circularity from the component side while demand aggregation resolves it from the vessel side.

The systems taxonomy and where value concentrates

To make the component problem tractable, all shipbuilding components have been classified within 8 systems and 80 sub-systems. Each system is then characterised by two variables: its share of the total component value of a vessel, and the extent to which India presently depends on imports to supply it.

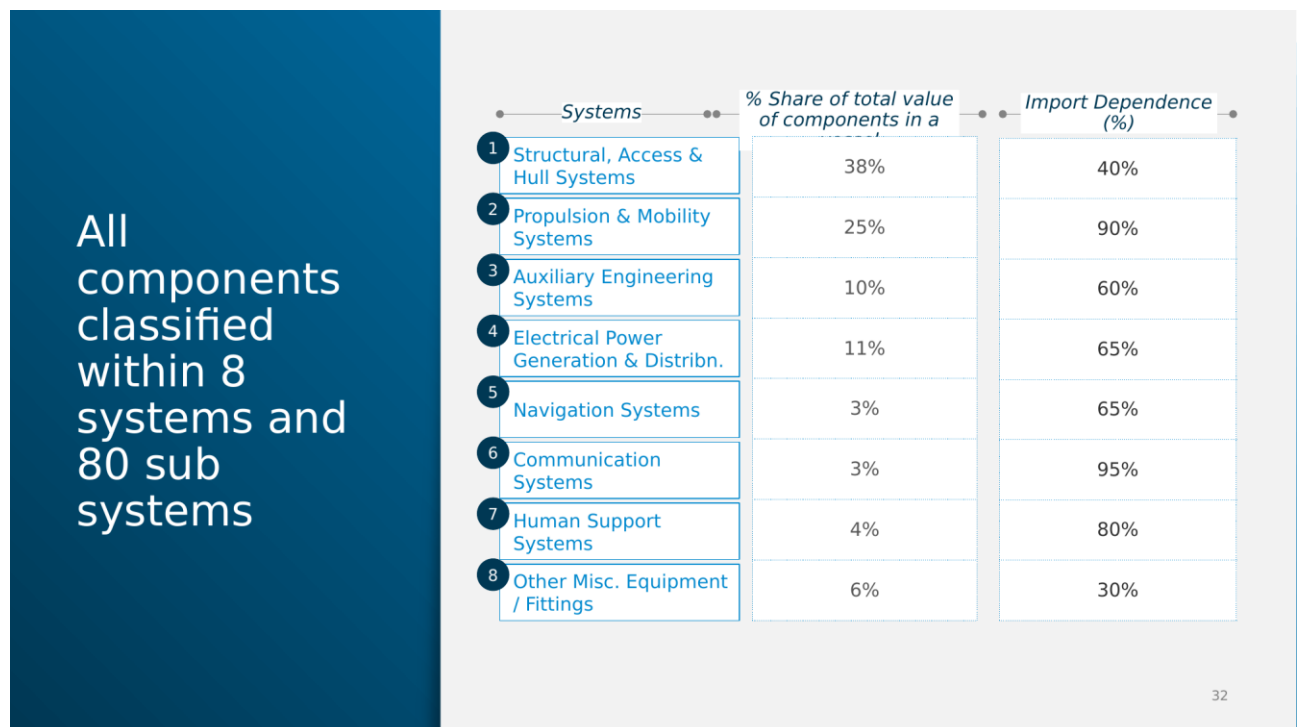


Exhibit 8.2: The eight systems by share of vessel value and import dependence

System	Share of total component value	Import dependence
Structural, access and hull systems	38%	40%
Propulsion and mobility systems	25%	90%
Electrical power generation and distribution	11%	65%

System	Share of total component value	Import dependence
Auxiliary engineering systems	10%	60%
Other miscellaneous equipment and fittings	6%	30%
Human support systems	4%	80%
Navigation systems	3%	65%
Communication systems	3%	95%

Table 8.1: The eight systems by value share and import dependence

Read together, the two columns identify where intervention matters most. Structural, access and hull systems represent the largest single share of component value at 38 per cent, and here import dependence is comparatively low at 40 per cent. This is the area of established Indian competence, resting on a domestic steel industry and existing fabrication capability. It is not the problem.

Propulsion and mobility systems present the critical exposure. They account for 25 per cent of component value, the second largest share, and import dependence stands at 90 per cent. Main engines, gearboxes and propulsion equipment are almost entirely imported. Because this is simultaneously a high-value and high-dependence category, it represents the single largest leakage of value from Indian shipbuilding, and it is also the most technically demanding category in which to establish domestic capability.

Communication systems show the highest import dependence at 95 per cent but account for only 3 per cent of component value. Navigation systems are similar, at 65 per cent dependence and 3 per cent of value. These are strategically sensitive but financially small. Human support systems, at 80 per cent dependence and 4 per cent of value, fall into a comparable category. Electrical power generation and distribution, at 11 per cent of value and 65 per cent dependence, and auxiliary engineering systems, at 10 per cent of value and 60 per cent dependence, occupy an intermediate position where both value and dependence are material.

The distribution makes clear that a uniform policy across all 80 sub-systems would be inefficient. A sub-system representing a fraction of a per cent of vessel value, where Indian industry is already capable, requires no intervention beyond removing barriers. A sub-system representing several per cent of value where no domestic capability exists requires sustained industrial development over many years. The archetype framework in section 8.3 is the response to this.

The four intervention archetypes

The 80 sub-systems have been tagged to four archetypes, defined along two dimensions: the maturity of Indian industry, measured as the number of capable domestic suppliers with a threshold of five, and the indicative share of vessel value, with a threshold of 1 per cent. Each archetype carries a distinct policy response, because the constraint in each is different.

These sub-systems tagged to 4-archetypes based on maturity of Indian Industry and share of vessel value

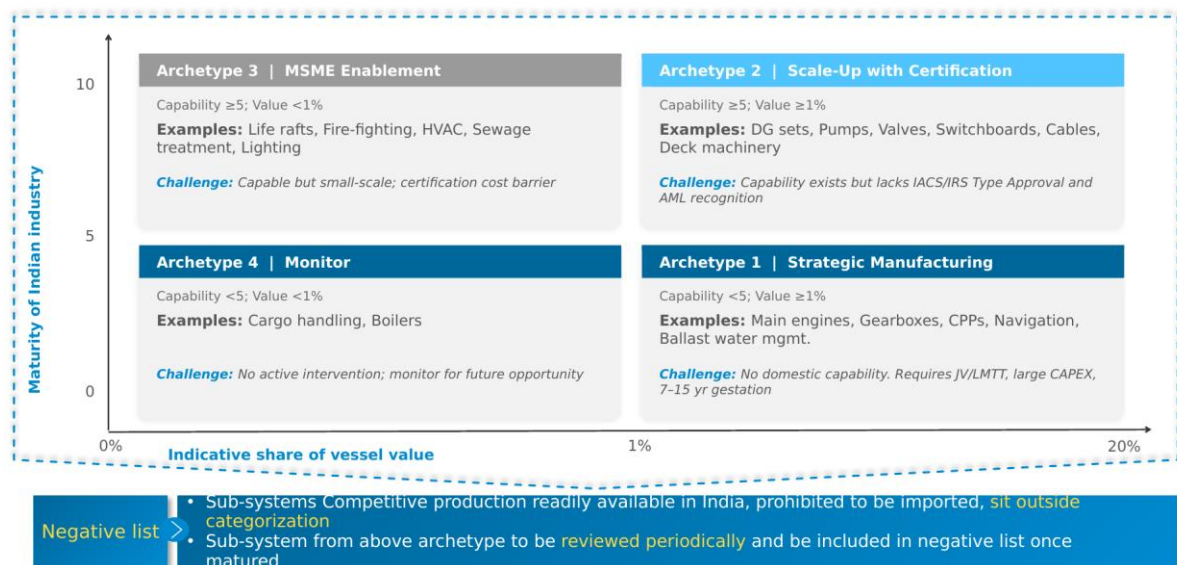


Exhibit 8.3: The four intervention archetypes for component sub-systems

Archetype 1, Strategic Manufacturing. Fewer than five capable domestic suppliers, and 1 per cent or more of vessel value. Examples include main engines, gearboxes, controllable pitch propellers, navigation equipment and ballast water management systems. The challenge is the absence of domestic capability altogether. Establishing it requires joint ventures or long-term manufacturing technology transfer, large capital expenditure, and a gestation period of 7 to 15 years. This is the hardest category and the one that maps onto the propulsion exposure identified in section 8.2.

Archetype 2, Scale-Up with Certification. Five or more capable domestic suppliers, and 1 per cent or more of vessel value. Examples include diesel generating sets, pumps, valves, switchboards, cables and deck machinery. Here capability exists but lacks International Association of Classification Societies or Indian Register of Shipping type approval and approved maker list recognition. The constraint is certification rather than manufacturing competence, and it is therefore the most tractable high-value category: the intervention required is qualification and recognition rather than industrial creation.

Archetype 3, MSME Enablement. Five or more capable domestic suppliers, and less than 1 per cent of vessel value. Examples include life rafts, fire-fighting equipment, heating, ventilation and air conditioning systems, sewage treatment plant and lighting. Suppliers are capable but operate at small scale, and the cost of certification is a barrier relative to the value of the business. The response is enablement of micro, small and medium enterprises, principally by reducing the relative burden of certification.

Archetype 4, Monitor. Fewer than five capable domestic suppliers, and less than 1 per cent of vessel value. Examples include cargo handling equipment and boilers. No active intervention is warranted; the category is monitored for future opportunity. Explicitly designating a set of sub-systems as requiring no action is a discipline that prevents the dispersion of policy attention across items that cannot justify it.

Sub-systems for which competitive production is readily available in India sit outside this categorisation altogether and are prohibited from being imported. These constitute the negative list examined in section 8.4. Sub-systems within the archetypes are to be reviewed periodically and moved to the negative list as domestic capability matures, so the framework is dynamic rather than fixed: a sub-system in Archetype 2 that completes certification and demonstrates competitive supply becomes a candidate for the negative list, and the policy attention it previously required is released.

The negative list and the indigenisation trigger

The negative list is the instrument through which indigenisation is converted from an aspiration into a requirement. Once a sub-system is placed on the list, it may not be imported, and yards must source it domestically.

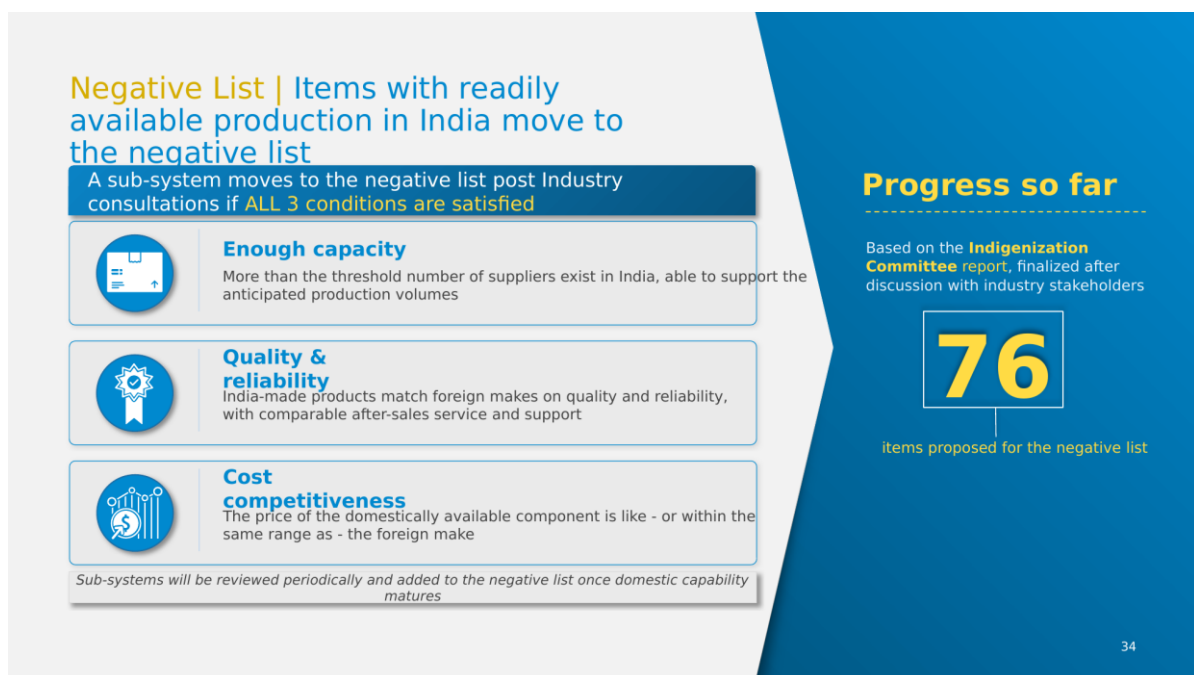


Exhibit 8.4: Conditions for inclusion in the negative list

Because the consequence is a binding restriction, the test for inclusion is demanding. A sub-system moves to the negative list, following industry consultation, only if all three of the following conditions are satisfied.

- Sufficient capacity. More than the threshold number of suppliers exists in India, and those suppliers are able to support the anticipated production volumes.
- Quality and reliability. India-made products match foreign makes on quality and reliability, with comparable after-sales service and support.
- Cost competitiveness. The price of the domestically available component is comparable to, or within the same range as, the foreign make.

The requirement that all three conditions be met, rather than any one, is what distinguishes this from a conventional import substitution measure. A restriction imposed where domestic capacity is insufficient would delay vessel delivery. One imposed where quality is inferior would compromise vessel safety and the yard's reputation with international owners. One imposed where domestic prices are materially higher would erode the competitiveness that the assistance under section 4.1 is intended to create. By requiring capacity, quality and price to be established before restriction applies, the mechanism protects the yards it is intended to support.

On progress, 76 items have been proposed for the negative list, based on the report of the Indigenization Committee and finalised after discussion with industry stakeholders. The role of industry consultation is important. Yards and component manufacturers hold the information on which the three conditions turn, and a restriction imposed without their input would risk being founded on an inaccurate view of domestic capability.

Sub-systems are to be reviewed periodically and added to the negative list as domestic capability matures. This makes the negative list the principal ratchet mechanism of the component agenda. As Archetype 2 sub-systems obtain certification and Archetype 3 suppliers achieve scale, they qualify for the list, and the domestic content share of each vessel rises. That in turn makes it progressively easier for yards to clear the 40 per cent domestic content threshold under the Shipbuilding Financial Assistance Scheme, which improves their assistance entitlement. The component agenda and the vessel assistance agenda thus reinforce one another over time.

9.9. Container Manufacturing Promotion Scheme

Scheme architecture and support components

The final instrument addressed in this section of the address concerns containers rather than vessels. Containers are the physical unit of global trade, and India has historically depended on imports for them, principally from a small number of overseas manufacturing hubs. The Container Manufacturing Promotion Scheme is a targeted support package intended to build self-reliant and globally competitive container manufacturing capacity in India.

Container Manufacturing Promotion Scheme (CMPS)

A targeted support package to build self-reliant, globally competitive container manufacturing capacity in India.

₹10,000 Cr

Total budgetary outlay under CMPS

13 Years

FY 2026-27 to FY 2038-39

1 Lakh TEUs

per Annum
Minimum group capacity threshold

₹49,500

Base Opex value for 20ft DV / HC ISO container

Support Architecture

Component A — Capex Assistance

25%

Grant of approved project cost for greenfield facilities and brownfield expansion.

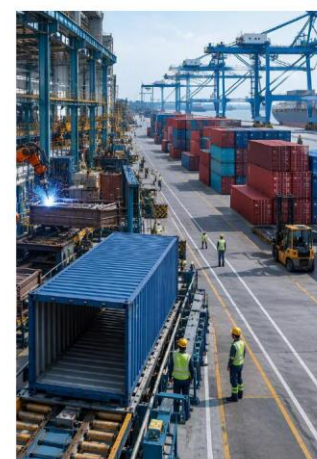
Component B — Opex Assistance

Per-container grant

Financial support for eligible containers manufactured in India and sold.

Policy Objectives

- ① Capacity creation through greenfield and brownfield manufacturing units
- ② Bridge structural cost disadvantage versus global manufacturing hubs
- ③ Reduce import dependence and strengthen EXIM supply security
- ④ Promote automation, quality consistency, jobs and ancillary growth



Strategic Outcome

Domestic availability of ISO containers to support EXIM trade, multimodal logistics and maritime supply-chain resilience.

36
8

Exhibit 9.1: Container Manufacturing Promotion Scheme: architecture and parameters

Parameter	Provision
Total budgetary outlay	\$1.1 Bn (Rs. 10,000 crore)
Scheme duration	13 years, from financial year 2026-27 to financial year 2038-39
Minimum group capacity threshold	1 lakh TEUs per annum
Base operating expenditure reference value	\$550 for a 20 foot dry van or high cube ISO container
Component A, capital expenditure assistance	25 per cent grant of approved project cost for greenfield facilities and brownfield expansion

Parameter	Provision
Component B, operating expenditure assistance	Per-container grant for eligible containers manufactured in India and sold

Table 9.1: Key parameters of the Container Manufacturing Promotion Scheme

The scheme rests on two support components addressing different economic problems. Component A provides capital expenditure assistance of 25 per cent of approved project cost, for greenfield facilities and brownfield expansion alike. This mirrors the brownfield rate under the Shipbuilding Development Scheme described in section 6.6 and reflects the same reasoning: a minority public contribution sufficient to alter the investment decision while leaving the majority of capital and the commercial risk with the promoter.

Component B provides operating expenditure assistance as a per-container grant for eligible containers manufactured in India and sold. This is the more distinctive element. Capital assistance alone would create capacity that then failed to operate competitively, because the disadvantage Indian manufacturers face against established hubs is a recurring cost disadvantage in steel, labour, scale and logistics rather than a one-time capital disadvantage. A per-container grant addresses the recurring gap directly, and by conditioning payment on containers manufactured and sold it links support to output rather than to installed capacity.

The base operating expenditure reference value of \$550 for a 20 foot dry van or high cube ISO container provides the benchmark against which the per-container grant is determined. The minimum group capacity threshold of 1 lakh TEUs per annum sets the scale of participation. This threshold reflects the economics of container manufacturing, which is a volume business where competitiveness depends on continuous production and automated fabrication. A threshold set materially lower would support sub-scale operations unable to compete once assistance concluded.

The scheme pursues four policy objectives: capacity creation through greenfield and brownfield manufacturing units; bridging the structural cost disadvantage against global manufacturing hubs; reducing import dependence and strengthening the security of export and import supply chains; and promoting automation, quality consistency, employment and ancillary industrial growth. The strategic outcome sought is domestic availability of ISO containers to support export and import trade, multimodal logistics and maritime supply chain resilience.

The thirteen-year duration, running from financial year 2026-27 to financial year 2038-39, exceeds the ten-year horizon of the shipbuilding schemes. This is consistent with the nature of the support: whereas capital assistance is a one-time intervention, the operating expenditure component must persist long enough for domestic manufacturers

to reach the scale at which the structural cost gap narrows through volume and learning rather than through subsidy.

9.10. Gujarat Strengthening India's Shipbuilding and Ship Repair Ecosystem – Kuchhadi and Vadinar Initiatives

Greenfield Shipbuilding Cluster at Kuchhadi, Porbandar



THE CASE IN FOUR NUMBERS

~2,000 acres

~75% government-owned land

2.7 km

continuous waterfront

10 m

natural draft at ~0.9 km offshore

1.2–1.5 Mn GT

annual shipbuilding capacity target

CONNECTED FROM DAY ONE

NH-51 direct • Rail 7.7 km • Port 10 km
8,000+ engineering MSMEs across Saurashtra

INVESTMENT READY Government-backed infrastructure • long-term land access •

25

Gujarat has emerged as one of the most important centres of maritime development in India, supported by its extensive coastline, strong industrial base, established port infrastructure, and long-standing maritime heritage. As India seeks to enhance its capabilities across shipbuilding, ship repair, maritime manufacturing, and coastal industrial development, Gujarat is playing a pivotal role through the development of new maritime infrastructure and capacity creation initiatives. Two significant projects in this regard are the proposed **Greenfield Shipbuilding Cluster at Kuchhadi, Porbandar** and the planned **ship-repair expansion at Vadinar in the Gulf of Kutch**. Together, these initiatives represent complementary investments that strengthen both vessel construction and vessel maintenance capabilities within India's maritime ecosystem.

The proposed Greenfield Shipbuilding Cluster at Kuchhadi is envisioned as a dedicated maritime manufacturing hub designed to support the long-term growth of India's shipbuilding industry. The development seeks to leverage Gujarat's strategic location along major international shipping routes, the availability of large coastal land parcels, favorable marine conditions, and strong industrial connectivity. Modern shipbuilding facilities require extensive waterfront access, large areas for fabrication and assembly, supporting infrastructure, and proximity to supply chains. The Kuchhadi site offers many of these advantages and has the potential to evolve into an integrated ecosystem that

brings together shipyards, equipment manufacturers, engineering industries, service providers, training institutions, and ancillary industries.

The cluster-based approach reflects international best practices in maritime industrial development. By creating a concentrated ecosystem of shipbuilding-related activities, the project can generate economies of scale, improve competitiveness, attract investment, and support technology adoption. Beyond vessel construction, such developments create opportunities for employment generation, skill development, engineering services, and manufacturing growth across a wide range of sectors linked to maritime activities.

Vadinar Expansion: Strengthening India's Strategic Ship Repair Capacity



CSL and Deendayal Port Authority plan a ₹1,570 crore ship-repair cluster at Pathfinder Creek in the Gulf of Kutch.

VADINAR LOCATION | GUJARAT



EXPANSION PLAN

- 1 DPA builds the marine base**
Three outfitting jetties, approach and berthing jetties, pump house and utilities | ₹650 Cr
- 2 CSL deploys repair assets**
Two 300 m floating dry docks, rail cranes, workshops, repair equipment and MEP | ₹920 Cr
- 3 Capacity comes on stream in phases**
First floating dock planned for 2027; second in 2028; overall implementation in 3 years 5 months from approval.

PLANNED OUTCOME

₹1,570 Cr

combined investment

2 × 300 m

floating dry docks | ships up to 270 m
LoA

32–34

vessel repair slots per year

26

While shipbuilding creates new maritime assets, ship repair forms an equally critical component of the maritime value chain. The proposed expansion at Vadinar seeks to strengthen India's ability to provide maintenance, repair, and lifecycle support services for commercial vessels. Located in the strategically important Gulf of Kutch region, Vadinar offers access to major shipping routes and existing maritime infrastructure, making it well suited for the development of large-scale repair facilities.

Ship repair capability is increasingly important as global shipping fleets continue to expand and modernize. Timely repair and maintenance services are essential for ensuring vessel safety, operational efficiency, regulatory compliance, and reduced downtime. Historically, a significant share of repair work for vessels operating in Indian waters has been undertaken outside the country. Expanding domestic repair infrastructure can help retain economic value within India, reduce dependence on foreign facilities, and strengthen the country's maritime service offerings.

Together, the Kuchhadi and Vadinar initiatives represent two interconnected pillars of maritime industrial development. While Kuchhadi focuses on creating future shipbuilding capacity and developing an integrated maritime manufacturing ecosystem, Vadinar seeks to strengthen repair and maintenance infrastructure required to support vessels throughout their operational lifecycle. This combination of construction and repair capability contributes to the development of a more complete and self-sustaining maritime ecosystem.

From a broader perspective, these projects support national objectives related to maritime self-reliance, industrial growth, employment generation, coastal development, and enhanced global competitiveness. They also align with the vision of creating a stronger maritime economy supported by modern infrastructure, advanced capabilities, and integrated industrial ecosystems. As India's maritime sector continues to evolve, initiatives such as Kuchhadi and Vadinar have the potential to reinforce Gujarat's position as a leading maritime state while contributing significantly to the country's long-term maritime ambitions.

10. Why Gujarat is important in maritime economy? Heritage (Lothal/ Indus)

From the ancient dockyard of Lothal to modern global trade corridors, Gujarat remains at the heart of India's maritime journey



Gujarat occupies a unique position in India's maritime history and has played a central role in shaping the country's relationship with the sea for over four millennia. From the earliest evidence of organized maritime trade during the Indus Valley Civilization to its present-day status as India's leading maritime state, Gujarat's coastline has served as a gateway connecting the Indian subcontinent with regions across the Arabian Sea, the Persian Gulf, East Africa, and beyond. The state's maritime legacy is not merely a story of ports and trade routes; it represents a continuous tradition of navigation, shipbuilding, commerce, cultural exchange, and seafaring that has influenced the development of Indian civilization itself.

One of the earliest and most significant examples of this maritime heritage is the ancient port city of **Lothal**, located in present-day Gujarat. Dating back to around 2400 BCE, Lothal is widely regarded as one of the world's earliest known dockyard complexes. Archaeological evidence suggests that the settlement possessed sophisticated maritime infrastructure capable of handling tidal movements and facilitating overseas trade. The existence of such advanced engineering during the Indus Valley Civilization demonstrates the high level of maritime knowledge and commercial organization that existed in the region thousands of years ago. Lothal remains a powerful symbol of India's ancient maritime capabilities and highlights Gujarat's longstanding connection with global trade networks.

Beyond Lothal, several Harappan settlements across Gujarat contributed to the growth of maritime commerce. Sites such as **Kuntasi, Nageshwar, and Padri** reveal evidence of trading activities linked to ancient civilizations in Mesopotamia, Oman, Bahrain, and other regions of the Arabian Gulf. These settlements formed part of an extensive maritime network through which goods, technologies, ideas, and cultural influences moved across continents. The archaeological record suggests that Gujarat's coastal communities were active participants in long-distance trade, helping establish India as an important centre of commerce in the ancient world.

Recognizing the significance of this heritage, efforts are underway to develop the **National Maritime Heritage Complex (NMHC) at Lothal**, envisioned as a world-class centre dedicated to showcasing India's maritime history. The project seeks to preserve and celebrate more than 4,500 years of maritime legacy while creating awareness about India's contributions to global navigation, shipbuilding, trade, and maritime innovation. The development of the complex reflects a broader effort to reconnect contemporary maritime development with the country's historical foundations and to position Gujarat as the birthplace of India's maritime civilization.

Archaeological discoveries along Gujarat's coastline further reinforce the state's historical importance. Evidence of ancient ports, jetties, anchors, harbour structures, and maritime settlements has been identified at locations such as **Dwarka, Bet Dwarka, Somnath, Ghogha, Hathab**, and several other coastal sites. These findings indicate a long and continuous tradition of maritime activity spanning multiple historical periods. Together, they provide valuable insights into the evolution of navigation, coastal trade, port infrastructure, and seafaring practices along India's western coast.

An equally important aspect of Gujarat's maritime heritage is the survival of traditional shipbuilding and seafaring practices. Communities in locations such as **Mandvi, Salaya, and Sikka** continue to preserve indigenous dhow-building traditions that have been passed down through generations. These wooden sailing vessels historically played an important role in trade across the Arabian Sea, connecting Gujarat with ports in East Africa, the Gulf, and other parts of the Indian Ocean region. The continuation of these traditions provides a living link between Gujarat's maritime past and present, demonstrating the enduring influence of seafaring culture on coastal communities.

The significance of Gujarat's maritime heritage extends beyond historical interest. It provides the cultural and civilisational foundation upon which the state's modern maritime achievements have been built. Today's ports, shipyards, maritime institutions, logistics networks, and coastal industries are part of a continuum that stretches back thousands of years. Understanding this legacy helps contextualize Gujarat's contemporary role as a maritime leader and underscores the importance of preserving and celebrating its contributions to India's maritime journey.

11. GIFT City: Reforms accelerates Indian Tonnage

GIFT City | Reforms accelerate Indian Tonnage



Complementary licensing and flagging reforms can make GIFT City a stronger base for ship ownership, leasing and international operations.

LICENSING FLEXIBILITY

Notified • 7 July 2026

- 1 **Section 11 exemption**
Eligible GIFT-IFSC entities can charter foreign vessels without a licence for EXIM and international trade.
- 2 **Faster international operations**
Simpler procedures improve ease of doing business and support timely vessel deployment.
- 3 **Protected coastal framework**
The existing cabotage regime and safeguards for coastal trade remain unchanged.

OVERSEAS FLAGGING FRAMEWORK

Policy approach • DGS letter, 16 June 2026

- 1 **Global flagging flexibility**
Proposed framework would permit IFSCA-based entities to register and operate vessels under foreign flags.
- 2 **Competitive ownership platform**
Supports internationally aligned ship-owning, leasing and financing structures through GIFT City.
- 3 **Greater global participation**
Broadens access to maritime capital, assets and services while deepening India-linked shipping activity.

COLLECTIVE IMPACT Grow India-linked tonnage and strengthen the Indian shipping ecosystem

Increased ownership

Ownership and leasing structures anchored through GIFT City

More investment

Greater participation of global maritime capital and services

Stronger ecosystem

Expanded financing, operations and maritime services in India

28

The growth of a country's merchant fleet is closely linked to its ability to attract maritime investment, provide competitive financing solutions, and create a regulatory environment that supports global shipping operations. As India seeks to strengthen its maritime presence and increase India-linked tonnage under Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047, GIFT City has emerged as an important enabler in the development of a modern maritime services ecosystem. Through its International Financial Services Centre (IFSC) framework, GIFT City is increasingly positioned to support ship ownership, leasing, financing, and other maritime services that are critical for expanding India's participation in global shipping.

Traditionally, a significant portion of vessels serving Indian trade has been owned, financed, or leased through overseas jurisdictions that offer flexible regulatory frameworks, specialized maritime financial services, and globally competitive operating conditions. As a result, while India remains one of the world's largest trading nations, its share of global merchant tonnage remains relatively modest. Addressing this gap requires not only investment in ships but also the creation of a supporting ecosystem that enables shipping companies to access capital, structure ownership arrangements, and manage international operations efficiently.

Recent reforms associated with GIFT City seek to address these challenges by creating a more attractive environment for maritime businesses. One important development has

been the provision of greater flexibility for IFSC-based entities engaged in international shipping activities. Simplified procedures and regulatory clarity can improve the ease of doing business, reduce transaction costs, and enable faster deployment of vessels in international trade. Such measures help create a more competitive operating environment for maritime enterprises seeking to establish their presence within India.

Another important area of reform relates to vessel registration and flagging arrangements. International shipping is characterized by highly mobile assets that often operate across multiple jurisdictions. Global shipowners frequently select flag states based on regulatory efficiency, commercial flexibility, financing requirements, and operational considerations. The proposed framework for overseas flagging seeks to accommodate these realities while encouraging maritime businesses to establish ownership, leasing, financing, and management structures through GIFT City. This approach can help attract global shipping capital while strengthening India's role within international maritime value chains.

The significance of these reforms extends beyond ship ownership alone. A vibrant maritime ecosystem requires the presence of multiple supporting services including ship leasing, insurance, legal services, financial institutions, classification support, technical management, and maritime consultancy. By positioning GIFT City as a hub for maritime financial and business services, India can create an integrated ecosystem capable of supporting domestic as well as international shipping activities.

Over time, increased participation of maritime investors, financial institutions, and shipping companies can contribute to the growth of India-linked tonnage, enhance the competitiveness of Indian maritime enterprises, and strengthen the country's strategic maritime capabilities. Greater ship ownership and leasing activity within India can also support employment generation, skill development, capital formation, and the development of specialized maritime expertise.

Ultimately, the reforms associated with GIFT City represent an important step toward strengthening India's maritime ecosystem. By combining financial innovation, regulatory flexibility, and international competitiveness, these initiatives seek to create conditions that encourage investment in shipping assets and maritime services. As India's trade volumes continue to grow, the development of a robust maritime financial and ownership ecosystem will play an increasingly important role in supporting national maritime ambitions and enhancing India's position in global shipping.

12. Gujarat: 98% of Ship Recycling

12.1. Ship Recycling



Ship recycling forms a critical component of the maritime value chain, supporting the circular economy, resource efficiency, environmental sustainability, and industrial development. As ships reach the end of their operational lives, responsible recycling enables the recovery of valuable materials, equipment, and components that can be reintegrated into manufacturing and industrial supply chains. Over the decades, India has emerged as one of the world's leading ship-recycling destinations, and Gujarat has been at the centre of this transformation. The state's ship-recycling ecosystem has evolved from a specialized coastal activity into a strategic national asset that supports industrial growth, resource conservation, employment generation, and maritime sustainability.

The prominence of Gujarat within India's ship-recycling sector is primarily driven by the Alang-Sosiya ship-recycling cluster located on the Gulf of Khambhat coast. Over the years, the cluster has developed into one of the largest and most established ship-recycling locations globally. Its unique geographical characteristics, tidal conditions, extensive waterfront, supporting industrial ecosystem, and accumulated operational expertise have enabled Gujarat to establish a dominant position in the sector. Today, the vast majority of India's ship-recycling activity is concentrated within the state, making Gujarat a key contributor to the country's maritime and industrial economy.

Beyond the dismantling of vessels, ship recycling has significant economic and industrial implications. The process enables the recovery of large quantities of reusable steel, machinery, electrical systems, marine equipment, and other materials that can be reused across multiple sectors. Recovered steel from recycled vessels contributes meaningfully to domestic raw material availability, reducing dependence on imported

scrap and lowering the requirement for virgin resource extraction. This aligns closely with broader national objectives relating to resource security, sustainability, and circular economic growth.

The sector also plays an important role in supporting downstream industries. Materials recovered from ships find applications in steel manufacturing, engineering industries, construction, fabrication, machinery production, and numerous small and medium enterprises. As a result, ship recycling generates economic value far beyond the recycling yard itself, creating linkages across a wide industrial ecosystem. The concentration of ship-recycling activity in Gujarat has therefore contributed to the development of a broader maritime-industrial cluster that supports employment, manufacturing, logistics, and trade.

In recent years, the global ship-recycling industry has witnessed increasing attention towards environmental performance, worker safety, and sustainable operational practices. International regulations, particularly the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (HKC), have established new standards governing recycling activities. Compliance with these standards has become increasingly important for attracting vessels from international shipowners and maintaining credibility within the global maritime community.

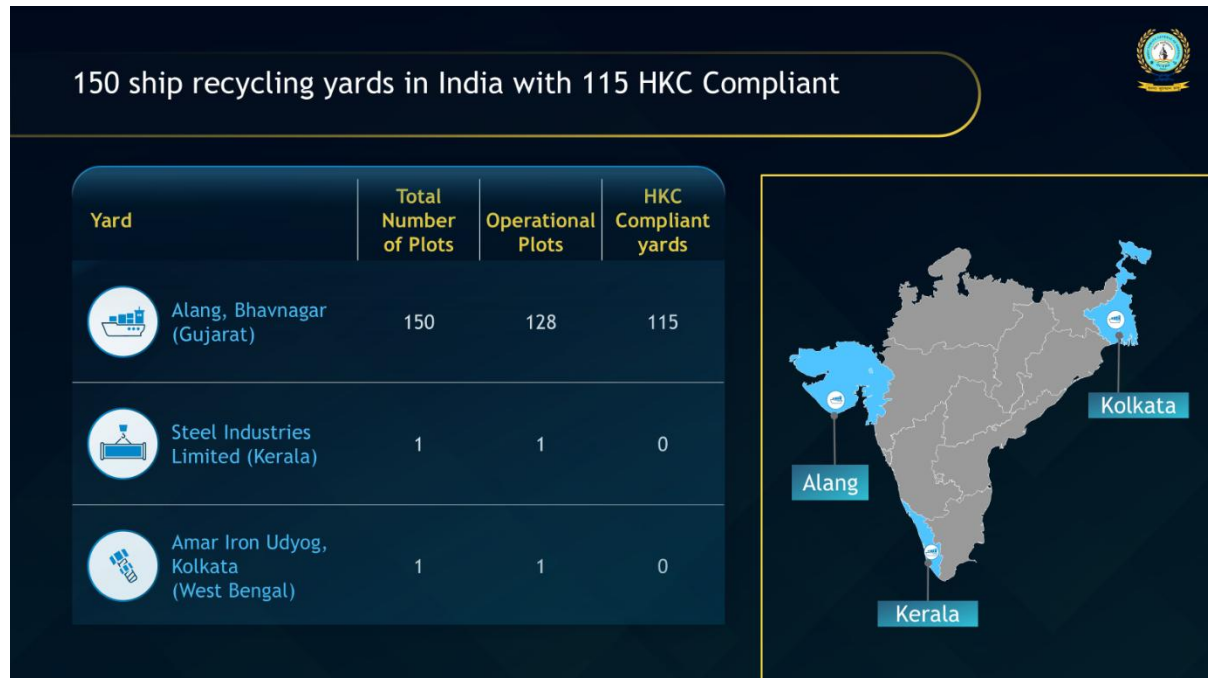
India has made significant progress in aligning its ship-recycling industry with these evolving requirements. Gujarat's ship-recycling facilities have been at the forefront of adopting improved safety systems, environmental management practices, worker welfare measures, hazardous material handling procedures, and infrastructure upgrades. The increasing number of compliant recycling facilities reflects the industry's transition towards globally accepted standards and demonstrates India's commitment to sustainable maritime practices.

The significance of ship recycling extends beyond economics and environmental management. The sector is also a major source of employment and livelihood generation. Thousands of workers are directly employed within recycling yards, while many more benefit indirectly through associated industries, transportation services, equipment recovery operations, fabrication units, and support services. The economic activity generated by ship recycling contributes significantly to local communities and coastal development across the region.

From a strategic perspective, Gujarat's leadership in ship recycling complements India's broader maritime ambitions. As the country seeks to expand its presence across shipping, ports, shipbuilding, coastal logistics, and maritime manufacturing, ship recycling provides an important foundation for creating a complete maritime ecosystem. The sector contributes to resource efficiency, strengthens domestic industrial supply chains, supports manufacturing competitiveness, and reinforces India's position within the global maritime value chain.

Looking ahead, the continued modernization of ship-recycling infrastructure, adoption of international best practices, integration of digital monitoring systems, and strengthening

of environmental and safety standards will be essential to sustaining long-term growth. Gujarat's experience demonstrates how a specialized maritime activity can evolve into a globally significant industrial ecosystem that delivers economic, environmental, and social benefits. As India advances towards its long-term maritime vision, Gujarat's ship-recycling ecosystem will continue to play a vital role in supporting sustainable industrial development, circular economy objectives, and the country's emergence as a leading maritime nation.



India's Leadership

India today occupies a central position in global ship recycling. The Alang–Sosiya ship recycling cluster in Bhavnagar, Gujarat is the largest such cluster in the world .

Current status of the Alang cluster:

- 150 total plots
- 128 operational plots
- 115 HKC compliant yards

The fact that 115 yards are HKC compliant is significant. It reflects not only infrastructure upgradation but a conscious regulatory transition over the past decade. No other recycling nation currently has over 100 HKC compliant facilities concentrated in a single cluster .

In volume terms, India handles approximately 30–35% of global ship recycling tonnage annually

At the national level, the sector supplies around 20–25% of India's ferrous scrap requirement. Given India's steel production expansion targets, this contribution is strategically relevant.

The sector provides direct employment to more than 15,000 workers and sustains a broader ecosystem involving logistics operators, re-rolling mills, scrap traders and ancillary service providers.

India's leadership is therefore based on scale, regulatory alignment and economic integration.

Strategic Importance

Ship recycling intersects with India's priorities in steel production, maritime manufacturing and sustainability commitments.

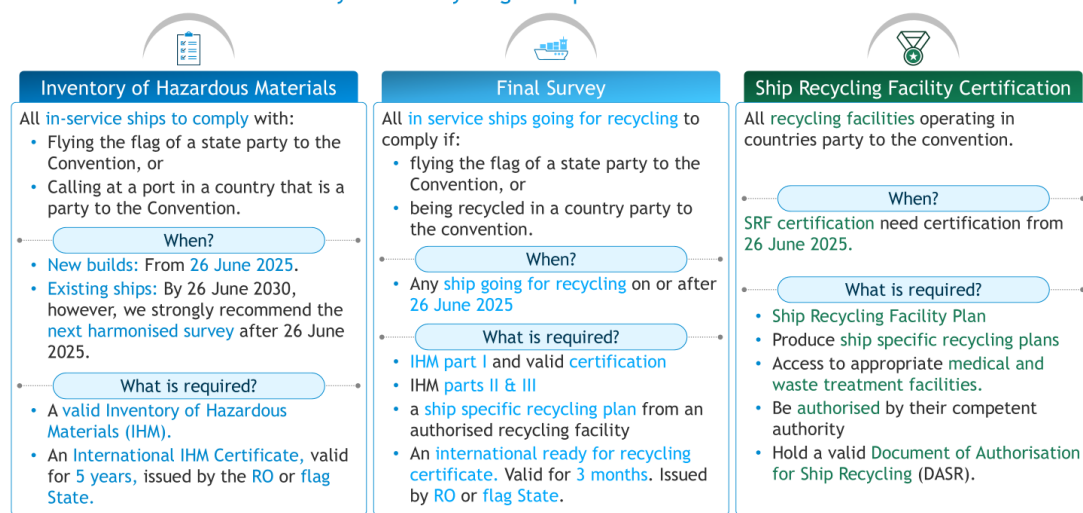
First, it strengthens domestic scrap availability. Scrap-based steel production is less energy intensive compared to primary steelmaking and reduces dependence on iron ore extraction and coal usage. In the context of decarbonisation and resource efficiency, this is important.

Second, it supports maritime industrial integration. The introduction of the Ship Recycling Credit Note under SBFA 2.0 has created a policy linkage between dismantling and new shipbuilding. This ensures that economic value generated from recycling remains within the domestic maritime ecosystem.

Third, post-HKC, shipowners assess recycling destinations on compliance credentials. India's compliance depth strengthens its credibility and reduces the risk of business diversion to alternative jurisdictions.

12.2. Hong Kong Convention (HKC)

Hong Kong International Convention For the safe and environmentally sound recycling of ships



The Hong Kong Convention establishes binding obligations for both ships and recycling facilities.

For ships:

- New ships are required to comply from 26 June 2025.
- Existing ships must comply by 26 June 2030 .

Ships proceeding for recycling after 26 June 2025 must carry:

- A valid Inventory of Hazardous Materials (IHM).
- Updated IHM Parts II and III.
- A ship-specific Recycling Plan.
- An International Ready for Recycling Certificate (valid for three months) .

For recycling facilities:

- An approved Ship Recycling Facility Plan is mandatory.
- Authorisation by the competent authority is required.
- A valid Document of Authorisation for Ship Recycling (DASR) must be held .

India's Recycling of Ships Act, 2019 operationalises these requirements domestically, ensuring harmonisation between international obligations and national enforcement.

Compliance and Risk

In the current regime, compliance gaps carry both regulatory and commercial consequences.

Improper handling of hazardous materials such as asbestos, PCBs, oils or sludge can result in environmental contamination and worker safety incidents. Documentation deficiencies in IHM or recycling plans can undermine international confidence.

Reputational risk is particularly relevant in the post-HKC environment, where shipowners and flag administrations are expected to exercise due diligence in selecting recycling destinations.

India's approach has therefore emphasised:

- Yard infrastructure upgradation.
- Adoption of internationally recognised management systems.
- Structured inspection and oversight.
- Progressive digitalisation of compliance processes.

The objective is to institutionalise compliance rather than rely solely on periodic enforcement.

Inventory of Hazardous Materials (IHM)

The IHM framework is central to safe and environmentally sound recycling.

The IHM consists of three parts:

- Part I – Hazardous materials present in ship structure and equipment.
- Part II – Operational wastes.
- Part III – Stores.

Ships must maintain a valid IHM certificate, generally with a five-year validity . Prior to recycling, Parts II and III must be completed and verified.

The IHM enables:

- Identification of hazardous substances.
- Planning of removal and segregation.
- Safe disposal pathways.
- Worker safety during dismantling.

In practical terms, effective IHM governance reduces uncertainty at the yard stage and supports structured dismantling.

12.3. ISO Standards for Ship Recycling



A significant number of Indian recycling facilities operate under ISO-based management systems , including:

- ISO 9001 – Quality Management.
- ISO 14001 – Environmental Management.
- ISO 30000 – Ship Recycling Management.
- ISO 45001 – Occupational Health and Safety.

These systems formalise documentation control, environmental monitoring, safety audits and corrective action mechanisms. ISO certification strengthens process discipline and enhances international credibility.

Ferrous Scrap Development Fund (FSDF)

The Ferrous Scrap Development Fund supports systemic improvements in the recycling ecosystem

The Fund is utilised for:

- Yard infrastructure improvements.
- Effluent treatment and hazardous waste management systems.
- Worker housing and welfare facilities.
- Skill development and training initiatives.
- Research and consultancy inputs.

The objective is to ensure that compliance and safety improvements are capital-backed and sustainable.

12.4. Green Steel

- “Green Steel” is defined by its CO₂ emission intensity — less than 2.2 tonnes CO₂ emission per tonne of finished steel (tfs).
- Greenness is expressed as a percentage reduction below the threshold of 2.2 2.2 tonnes CO₂ emission per tonne of finished steel
- The certification done via NISST (National Institute of Secondary Steel Technology) under the Bureau of Energy Efficiency (BEE) Measurement, Reporting and Verification (MRV) methodology.

Star Rating System

- Five-Star: < 1.6 tCO₂e/tfs ★★★★★
- Four-Star: 1.6 – 2.0 tCO₂e/tfs ★★★★
- Three-Star: 2.0 – 2.2 tCO₂e/tfs ★★★
- > 2.2 tCO₂e/tfs → Not eligible for green rating
(Threshold reviewed every 3 years)



35

Green Steel is defined as steel with emission intensity below 2.2 tonnes of CO₂ per tonne of finished steel

Scrap-based steel production significantly reduces resource consumption. For every tonne of scrap steel used:

- 1,370 kg of iron ore is conserved.
- 780 kg of coal is saved.
- 270 kg of limestone is saved

Ship recycling therefore directly contributes to resource conservation and emissions reduction objectives.

Circular Economy Linkage

India's ship recycling model now reflects a structured circular framework:

- Ships are dismantled in HKC-compliant yards.
- Scrap is channelled into domestic steel production.
- The Credit Note incentivises new vessel construction in India.
- Fleet renewal supports technological modernisation.
- FSDF reinvests in safety and infrastructure.
- Digital governance improves transparency and oversight.

The emphasis going forward will be on maintaining documentation integrity, strengthening digital systems and ensuring that worker safety and environmental safeguards remain embedded in operations.

13. Gujarat - Maritime institutes and GANPAT university - host of the Maritime National Games

Gujarat - Maritime institutes and GANPAT university - host of the Maritime National Games



The National Maritime Games 2027 is India's integrated national sports and family platform for the maritime ecosystem, bringing together seafarers, ports, shipping companies, PSUs, maritime training institutes, shipyards, RPSLs, logistics organisations, ship-recycling units, universities, research institutions, unions, veterans and maritime families.



Ganpat University is supporting DGMA as a **strategic partner & host** in conducting the National Maritime Games 2026.

Vision of National Maritime Games

To establish the National Maritime Games as India's trusted biannual platform for sporting excellence, maritime unity, workforce wellbeing, family participation, Para inclusion and youth aspiration.



Core Objective

- Mobilise the full maritime ecosystem through a credible, nationally coordinated sporting platform.
- Provide fair opportunities for men, women, mixed teams and Para athletes under transparent entry, draw, officiating and appeal processes.
- Promote physical fitness, preventive health, mental wellbeing and sports participation among seafarers, shore personnel, cadets, students and families.
- Recognise the service of seafarers, families, women pioneers, rescuers, veterans and unsung maritime contributors.
- Strengthen collaboration between DGMA, MoPSW, maritime organisations, sports bodies, government agencies and industry partners.

30

The maritime sector is often viewed through the lens of ports, shipping, shipbuilding, and logistics; however, its true strength lies in the people who drive the industry. Seafarers, maritime professionals, students, trainers, researchers, port personnel, shipyard workers, and their families collectively form the backbone of the maritime ecosystem. As India's maritime ambitions continue to expand under Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047, there is an increasing recognition that human capital development, workforce wellbeing, and stakeholder engagement are as important as physical infrastructure and industrial growth. Within this context, Gujarat's strong maritime education ecosystem and the role of institutions such as Ganpat University assume significant importance.

Gujarat has long been one of India's leading maritime states, not only because of its extensive coastline and maritime infrastructure but also due to the presence of a robust network of maritime education and training institutions. The state hosts a range of institutions offering programs in marine engineering, nautical science, port and shipping management, logistics, maritime law, offshore operations, and allied disciplines. These institutions play a vital role in creating a skilled workforce capable of supporting the evolving requirements of the maritime sector. Through academic programs, practical training, industry engagement, and research initiatives, Gujarat continues to contribute significantly to India's maritime talent pool.

As the maritime industry evolves, there is a growing need to foster stronger connections between educational institutions, industry stakeholders, regulatory bodies, and maritime communities. The concept of the National Maritime Games emerges from this broader vision of creating a more integrated and inclusive maritime ecosystem. The initiative seeks to move beyond traditional conferences and professional engagements by creating a national platform that promotes interaction, camaraderie, wellbeing, and collaboration among stakeholders across the maritime sector.

The National Maritime Games are envisioned as a unique platform that brings together diverse participants from across the maritime community. These include seafarers, port authorities, shipping companies, public sector undertakings, maritime training institutes, shipyards, recruitment and placement service providers, logistics organizations, ship recycling units, universities, research institutions, industry associations, veterans, and maritime families. By creating opportunities for interaction beyond the workplace, the initiative seeks to strengthen professional networks, promote a shared maritime identity, and build a stronger sense of community within the sector.

A key feature of the initiative is its focus on holistic wellbeing. Maritime professions often involve demanding working conditions, extended periods away from home, and significant physical and mental challenges. Promoting physical fitness, preventive healthcare, mental wellbeing, and family participation is therefore increasingly recognized as an important component of workforce development. Sporting events and community engagement activities provide an effective avenue to encourage healthy lifestyles, improve morale, and strengthen social support systems across the maritime sector.

Ganpat University's role as a strategic partner and host institution reflects the growing importance of academic institutions in supporting maritime sector development beyond conventional education and training. Universities today are expected to function as centers of innovation, collaboration, research, and community engagement. By supporting initiatives such as the National Maritime Games, institutions can contribute to building stronger links between academia and industry while creating opportunities for students and young professionals to engage with the broader maritime ecosystem.

The vision behind the National Maritime Games extends beyond sports and recreation. It seeks to establish a credible and nationally coordinated platform that promotes inclusion, participation, recognition, and collaboration across the maritime sector. The initiative also aims to provide equal opportunities for men, women, youth, veterans, and para-athletes, reflecting the sector's commitment to diversity and inclusivity. At the same time, it offers a platform to recognize the contributions of seafarers, maritime families, rescuers, pioneers, and other stakeholders whose efforts often remain outside the public spotlight.

Ultimately, the National Maritime Games represent an innovative approach to strengthening the human dimension of India's maritime ecosystem. By combining sporting excellence, workforce wellbeing, family participation, youth engagement, and industry collaboration within a single platform, the initiative seeks to reinforce the sense of unity and shared purpose that will be essential in achieving India's long-term maritime aspirations. Gujarat, through its maritime institutions and the participation of Ganpat University, is well positioned to support this vision and contribute to the development of a stronger, more connected, and future-ready maritime community.

14. Formation of BoPS, Proposal for national level institute for port and coastal security

The Bureau of Port Security (BoPS) has been established as a dedicated national authority to regulate, oversee, and strengthen security at India's ports and port facilities. Constituted under Section 13(1) of the Merchant Shipping Act, 2025, BoPS serves as the statutory body responsible for implementing and enforcing security measures at port facilities and vessel-port interfaces in accordance with the requirements of the International Ship and Port Facility Security (ISPS) Code. Its establishment addresses the need for a centralized institutional framework to ensure consistent security standards across the country's maritime infrastructure. Through a notification issued by the Ministry of Ports, Shipping and Waterways on 27 June 2026, the Bureau was formally constituted, with the Director General of Maritime Affairs (DGMA) designated to function as the interim Director General of BoPS until a dedicated leadership structure is approved by the Government.

BoPS has been envisaged as the designated authority for maritime security assurance, creating a single-point mechanism for security oversight at all port facilities in India. In this role, the Bureau is responsible for reviewing and approving Port Facility Security Assessments (PFSAAs) and Port Facility Security Plans (PFSPs), conducting compliance audits and inspections, undertaking certification activities, and ensuring adherence to ISPS Code requirements. The Bureau also acts as the nodal agency for coordination among ports, security agencies, maritime authorities, and other stakeholders involved in safeguarding maritime infrastructure. To strengthen the security assurance ecosystem, DGS Circular No. 22 of 2026 dated 06 May 2026 authorized the Central Industrial Security Force (CISF) as a Recognized Security Organisation (RSO) for port facilities, alongside the Indian Register of Shipping (IRS). This enables CISF to undertake security assessments, audits, certification activities, and provide security-related advisory support to port facilities.

Looking towards future security challenges, BoPS has proposed the establishment of a dedicated Coordination, Technology and Cyber Security Division to enhance cyber resilience across India's port sector. With increasing digitization and automation of port operations, cyber threats have emerged as a critical risk to maritime infrastructure. The proposed division would issue cyber security advisories, support implementation of cyber security measures across port facilities, develop sector-specific cyber security frameworks, and facilitate adoption of technology-driven security solutions. The division is expected to strengthen the ability of ports to prevent, detect, respond to, and recover

from cyber incidents, thereby ensuring the continuity and resilience of maritime trade and logistics operations.

In addition to regulatory and cyber security functions, BoPS is also focused on building long-term national capacity in maritime security. In collaboration with CISF, a proposal has been developed to establish a National Centre of Excellence for Port and Coastal Security at Okha, Gujarat. The proposed centre would serve as a premier institution for training, certification, research, and capacity building in the fields of port security, coastal security, and maritime risk management. It is envisaged to provide specialized training programmes for security personnel, conduct research on emerging security threats, develop best practices, facilitate inter-agency cooperation, and promote professional excellence in maritime security management. The centre would play a crucial role in creating a highly skilled workforce capable of addressing evolving security challenges in the maritime domain.

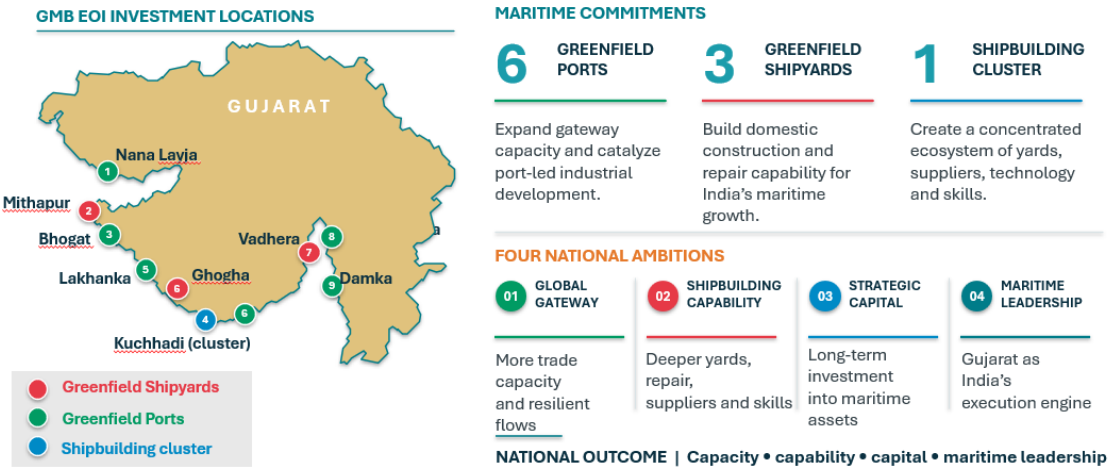
Overall, the establishment of the Bureau of Port Security represents a significant milestone in strengthening India's maritime security architecture. By providing statutory backing, centralized oversight, a dedicated compliance and assurance framework, enhanced cyber security capabilities, and a national platform for security training and research, BoPS is expected to significantly improve the security, resilience, and preparedness of India's ports and maritime infrastructure while ensuring compliance with national and international security standards.

15. Gujarat Maritime Investments

Gujarat's maritime investments will amplify India's national ambitions



GMB commitment pipeline | 6 greenfield ports • 3 shipyards • 1 shipbuilding cluster



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This slide highlights Gujarat's pivotal role in advancing India's maritime transformation through a large-scale pipeline of port, shipbuilding, and maritime infrastructure investments being pursued under the Gujarat Maritime Board (GMB). As India seeks to strengthen its position as a leading maritime nation under Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047, Gujarat has emerged as a key execution engine for translating national maritime aspirations into on-ground infrastructure and industrial capacity.

The slide presents a comprehensive investment commitment pipeline comprising **six greenfield ports, three greenfield shipyards, and one dedicated shipbuilding cluster**, representing one of the largest maritime development programs undertaken by any coastal state in India. These projects are strategically distributed across Gujarat's coastline and are intended to strengthen port capacity, expand shipbuilding capability, attract maritime investments, and create a robust industrial ecosystem linked to maritime trade and logistics.

The proposed investment locations include **Nana Lavia, Mithapur, Bhogat, Lakhanka, Ghogha, Kuchhadi, Vadhera, and Damka**, covering both port-led infrastructure and shipbuilding developments. The Kuchhadi location has been identified as the proposed shipbuilding cluster, while the remaining sites represent a combination of greenfield ports and shipyard projects. Together, these developments are expected to create a network of maritime assets spanning Gujarat's western coastline, reinforcing its position as the maritime gateway of India.

The six proposed greenfield ports are aimed at expanding gateway capacity and supporting future cargo growth. As trade volumes continue to increase and industrial corridors expand, these ports will play an important role in enhancing logistics efficiency,

reducing congestion at existing facilities, and enabling port-led industrialization. The developments are also expected to support emerging sectors such as coastal shipping, offshore energy, renewable energy logistics, and multimodal transportation networks.

In parallel, the proposed greenfield shipyards will contribute significantly to strengthening India's domestic shipbuilding and ship-repair capabilities. Shipbuilding has been identified as a strategic national priority due to its strong linkage with manufacturing, engineering, technology, employment generation, and national security. The development of new shipyards in Gujarat is expected to enhance indigenous vessel construction capacity, support maintenance and repair services, and create opportunities for marine equipment manufacturers and ancillary industries.

A key component of the investment pipeline is the proposed **Kuchhadi Shipbuilding Cluster**, which seeks to create an integrated ecosystem of shipyards, suppliers, marine equipment manufacturers, technology providers, training institutions, and support services. The cluster approach is intended to leverage economies of scale and create a concentrated maritime manufacturing hub capable of supporting large-scale vessel construction and repair activities. By integrating shipbuilding infrastructure with ancillary industries and skilled workforce development, the cluster is expected to improve competitiveness and attract both domestic and international investment.

The slide further links these investments to four broader national ambitions. The first is the creation of a **Global Gateway**, enabling higher trade capacity, resilient supply chains, and improved connectivity. The second is strengthening **Shipbuilding Capability** through deeper shipyard infrastructure, enhanced repair facilities, and a stronger domestic supplier ecosystem. The third ambition focuses on **Strategic Capital Formation**, encouraging long-term investment into maritime assets and industrial infrastructure. Finally, the investments contribute towards **Maritime Leadership**, positioning Gujarat as a key driver of India's maritime growth and a leading maritime state within the national ecosystem.

Collectively, these initiatives are expected to deliver substantial economic and strategic benefits. Increased port capacity will support trade growth and industrial expansion, while shipbuilding investments will create high-value employment opportunities and strengthen domestic manufacturing capabilities. The projects will also enhance coastal development, stimulate private investment, improve logistics competitiveness, and reinforce India's efforts towards maritime self-reliance.

The central message of the slide is that Gujarat's maritime investments extend beyond state-level development objectives and directly contribute to national priorities. Through the creation of new ports, shipyards, and maritime industrial ecosystems, Gujarat is helping build the capacity, capability, capital base, and leadership required for India to emerge as a globally competitive maritime nation over the coming decades.

16. Gujarat Coastal State Workshops

Gujarat Coastal State Workshop

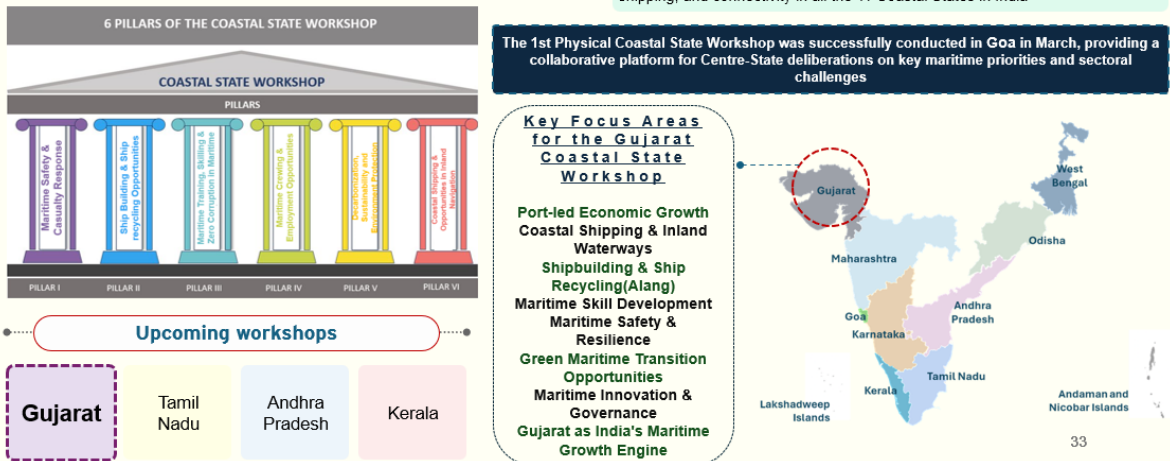


Rationale

The Coastal State Workshop is being organized by the Directorate General of Maritime Administration to strengthen Centre - State coordination in maritime governance, address key challenges, and align State initiatives with national maritime priorities

Objectives

The workshop aims to facilitate focused deliberations on State-specific maritime issues, promote stakeholder coordination, and support aligned development across key sectors such as maritime safety, shipbuilding, sustainability, coastal shipping, and connectivity in all the 11 Coastal States in India



This slide outlines the rationale, objectives, and thematic focus areas of the proposed **Gujarat Coastal State Workshop**, an initiative being undertaken by the Directorate General of Maritime Administration (DGMA) to strengthen Centre–State coordination in maritime governance and accelerate the implementation of national maritime priorities at the state level. The workshop forms part of a broader engagement strategy aimed at creating a structured platform for deliberation on state-specific maritime opportunities, challenges, and policy interventions across India's coastal states.

The workshop is designed to facilitate focused discussions among key stakeholders from the Central Government, State Government, maritime agencies, ports, industry associations, academia, and maritime institutions. Its primary objective is to align Gujarat's maritime development agenda with national initiatives such as **Maritime India Vision 2030 (MIV 2030)** and **Maritime Amrit Kaal Vision 2047 (MAKV 2047)** while addressing local opportunities and sectoral requirements. The initiative recognizes that many maritime development priorities—including port-led industrialization, coastal shipping, maritime skilling, shipbuilding, sustainability, and logistics connectivity—require close coordination between national and state-level institutions.

The slide highlights that the first physical Coastal State Workshop was successfully conducted in Goa in March 2026, demonstrating the effectiveness of the platform in fostering collaborative dialogue on key maritime priorities. Building on the success of the Goa workshop, Gujarat has been identified as one of the next focus states due to its strategic importance within India's maritime ecosystem. Gujarat possesses the country's longest coastline, hosts several major and non-major ports, accounts for a significant share of India's cargo throughput, and serves as a leading hub for

shipbuilding, ship recycling, maritime manufacturing, and port-led industrial development.

The workshop framework is structured around six thematic pillars that collectively encompass the major dimensions of maritime development. These pillars include maritime safety and security, shipbuilding and ship repair, maritime training and human capital development, sustainable and green maritime growth, coastal shipping and connectivity, and maritime innovation and governance. The multi-pillar approach ensures that discussions extend beyond individual sectors and address the maritime ecosystem in a holistic manner.

The slide further identifies the key focus areas proposed for the Gujarat workshop. These include **port-led economic growth, coastal shipping and inland waterways, shipbuilding and ship recycling (with special emphasis on Alang), maritime skill development, maritime safety and resilience, green maritime transition opportunities, maritime innovation and governance**, and Gujarat's role as a driver of India's maritime growth story. Collectively, these themes seek to leverage Gujarat's existing strengths while identifying new opportunities to support national maritime ambitions.

Overall, the Gujarat Coastal State Workshop is envisaged as a strategic platform to strengthen policy alignment, promote stakeholder collaboration, and accelerate maritime sector development through coordinated action between the Centre and the State. The outcomes of the workshop are expected to contribute significantly towards achieving India's long-term vision of becoming a globally competitive maritime nation.

17. Proposal for scheme for the traditional Seafarers on mechanized sailing vessels

This slide highlights the systemic welfare, compensation, and social security gaps affecting traditional Indian Sailing Vessel (ISV) seafarers operating on mechanized sailing vessels. The discussion is anchored around the **MSV Al Faiz Noore Soleimani-I incident in May 2026**, which occurred during heightened tensions in the Strait of Hormuz. The casualty resulted in the loss of one seafarer's life, injuries to five others, and the sinking of the vessel. While tragic in itself, the incident exposed a broader structural challenge within India's maritime ecosystem—namely, the absence of a comprehensive welfare and compensation framework for ISV seafarers.

The analysis compares the compensation architecture available to conventional merchant navy seafarers with that available to ISV personnel. Merchant navy seafarers typically benefit from multiple layers of financial protection, including Collective Bargaining Agreement (CBA) compensation, war-zone protection, P&I-backed shipowner liability coverage, Seafarers Welfare Fund Society (SWFS) benefits, and war-risk insurance. Collectively, these mechanisms can provide compensation ranging from approximately ₹86 lakh to ₹2.6 crore depending on the nature of the casualty.

In contrast, ISV seafarers currently lack access to most formal protection mechanisms. In many cases, compensation is limited to ex-gratia payments in the range of ₹2–10 lakh, resulting in a compensation disparity estimated at approximately **8 to 130 times** compared to merchant navy personnel. This disparity is not merely financial but reflects a broader exclusion from formal maritime welfare structures.

The slide further introduces a **Multi-Dimensional Deprivation Matrix**, demonstrating that the challenge extends beyond compensation alone. ISV seafarers remain largely excluded from SWFS and other welfare schemes, operate without formal employment agreements, possess limited insurance coverage, and face significant constraints in accessing welfare infrastructure. Their integration with digital maritime platforms such as **e-Samudra** remains limited, restricting visibility within the formal regulatory ecosystem. Capacity-building support, telemedicine facilities, conflict-zone preparedness measures, and family assistance mechanisms are also underdeveloped.

The central message of the slide is that the welfare gap affecting traditional seafarers is structural and multi-dimensional. As India's maritime sector evolves towards a more inclusive and comprehensive regulatory framework under DGMA, there is an urgent need to extend social protection, compensation mechanisms, and institutional support to this vulnerable segment of the maritime workforce.

Building on the gaps identified in the previous slide, this slide presents a proposed **Integrated Social Protection Architecture** for traditional seafarers operating on

mechanized sailing vessels. The framework seeks to establish a comprehensive system covering prevention, protection, compensation, crisis response, and family welfare. Rather than relying on a single welfare payment or isolated intervention, the proposal adopts a layered approach designed to provide support across the entire lifecycle of maritime employment.

The framework begins with **Prevention and Preparedness**, focusing on reducing operational risk before incidents occur. Proposed measures include a standardized certification framework, enhanced training through institutions such as the SV Maritime Training Institute (SVMTI), improved safety equipment, telemedicine integration, health screening protocols, and strengthened Human Resource Administration (HRA) practices. The objective is to improve operational readiness and reduce casualty risks through proactive intervention.

The second layer focuses on **Employment Protection**, introducing a Model Sailing Vessel Employment Agreement (MSVEA) that would formalize employment relationships, define minimum compensation standards, and establish a statutory employment framework. This layer seeks to provide traditional seafarers with protections similar to those available within the merchant shipping sector.

The third layer addresses **Insurance Protection** through mandatory crew insurance mechanisms under Rule 59, supported by government premium assistance and participation from public sector insurers. This would ensure affordable access to risk coverage and improve financial resilience for seafarers and their families.

The fourth layer focuses on **Welfare Protection**, integrating traditional seafarers into existing welfare mechanisms such as SWFS while introducing sickness support, rehabilitation assistance, legal aid, seasonal livelihood support, and family welfare measures. This aims to create a sustainable social security net beyond incident-related compensation.

Recognizing the unique risks associated with maritime operations in conflict-prone regions, the framework also proposes a dedicated **Crisis Protection Layer**. This includes a Notified Hostile Maritime Zone (NHMZ) framework, enhanced compensation arrangements, contingency funding mechanisms, and emergency response support for seafarers operating in high-risk waters.

The final layer addresses **Family and Dependent Protection**, extending support to survivors and dependents through healthcare assistance, educational support, counselling services, women seafarer initiatives, and community-level mechanisms such as engagement through Tindal Councils.

Collectively, these measures are intended to achieve compensation parity between traditional seafarers and those employed in the merchant navy. Under the proposed framework, peacetime casualty coverage could increase to approximately ₹51 lakh

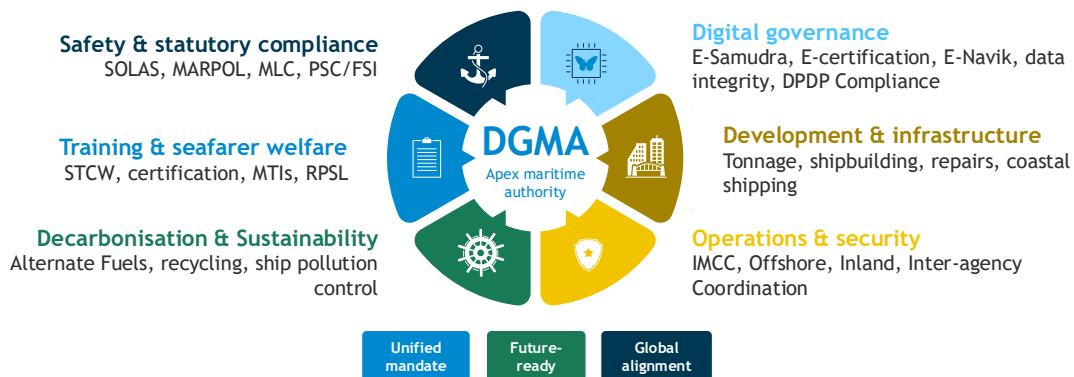
through a combination of employment protection, insurance support, and welfare benefits. In hostile maritime zones, compensation levels could increase further through enhanced protection mechanisms. The slide emphasizes that meaningful parity cannot be achieved through a single welfare payment but requires a comprehensive, multi-layered architecture that integrates prevention, insurance, welfare, crisis response, and family support within a unified regulatory framework.

18. DGS to DGMA Transition

DGS to DGMA Transition



The proposed redesignation & restructuring aligns with the objectives of **Maritime India Vision 2030** and **Amrit Kaal Vision 2047**, while supporting India's expanding role in global maritime forums such as **IMO, ILO, and UNFCCC**. It aims to enhance functional clarity, strengthen inter-Wing collaboration, and improve stakeholder engagement to effectively address emerging priorities including sustainability, climate change, automation, and maritime digitization.



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The proposed transition from the **Directorate General of Shipping (DGS)** to the **Directorate General of Maritime Administration (DGMA)** is a transformational reform in India's maritime governance architecture. It is not merely a change in nomenclature, but a strategic restructuring intended to create a modern, integrated, technology-enabled, and globally benchmarked maritime administration capable of supporting India's maritime ambitions over the coming decades.

The redesignation is closely aligned with the objectives laid down under **Maritime India Vision 2030 (MIV 2030)** and **Amrit Kaal Vision 2047**, which seek to position India as a global maritime leader, strengthen the blue economy, enhance maritime sustainability, and improve India's competitiveness within the international shipping ecosystem. The existing DGS framework was created under the Merchant Shipping Act, 1958 and was primarily focused on merchant shipping regulation. However, maritime governance today extends far beyond traditional shipping and requires a more holistic institutional mechanism.

The new DGMA structure is therefore envisioned as the apex maritime authority responsible not only for shipping regulation, but also for coordinating broader maritime development, sustainability initiatives, digital governance, maritime safety, security, and international representation. The restructuring will improve organizational clarity, facilitate inter-wing coordination, and create dedicated capacity for emerging maritime priorities such as decarbonization, digitalization, offshore operations, and climate resilience.

18.1. Key Functional Domains of DGMA

1. Safety and Statutory Compliance

At its core, DGMA will continue to ensure compliance with major international maritime conventions including SOLAS, MARPOL, MLC, Load Line Convention, Ballast Water Management Convention, Anti-Fouling Systems Convention, and other IMO instruments. It will strengthen Port State Control and Flag State Inspection mechanisms while extending oversight beyond traditional merchant shipping to newer categories of maritime assets.

2. Training and Seafarer Welfare

DGMA will oversee standards under the STCW Convention, maritime education and training institutions, seafarer certification systems, welfare measures, recruitment and placement services, and welfare protections for Indian seafarers, including those serving on foreign-flagged vessels. The emphasis will be on creating a globally competitive maritime workforce while ensuring international labour compliance.

3. Decarbonisation and Sustainability

As global shipping transitions toward low-carbon operations, DGMA will play a leading role in promoting green shipping practices, alternate marine fuels, ship recycling compliance under the Hong Kong Convention, pollution control measures, and implementation of evolving IMO greenhouse gas reduction targets. The authority is expected to become a key enabler of India's maritime sustainability agenda.

4. Digital Governance

The future maritime administration will operate through digital-first systems such as e-Samudra, e-Certification, e-Navik, digital licensing systems, maritime databases, dashboards, and electronic compliance mechanisms. These reforms are intended to improve transparency, reduce processing timelines, eliminate paper-based workflows, strengthen data integrity, and support compliance with the Digital Personal Data Protection framework.

5. Maritime Development and Infrastructure

DGMA will support national efforts in shipbuilding, ship repair, coastal shipping, maritime clusters, transshipment hubs, and maritime infrastructure development. This represents a significant broadening of scope compared with the traditional regulatory mandate of DGS.

6. Maritime Operations and Security

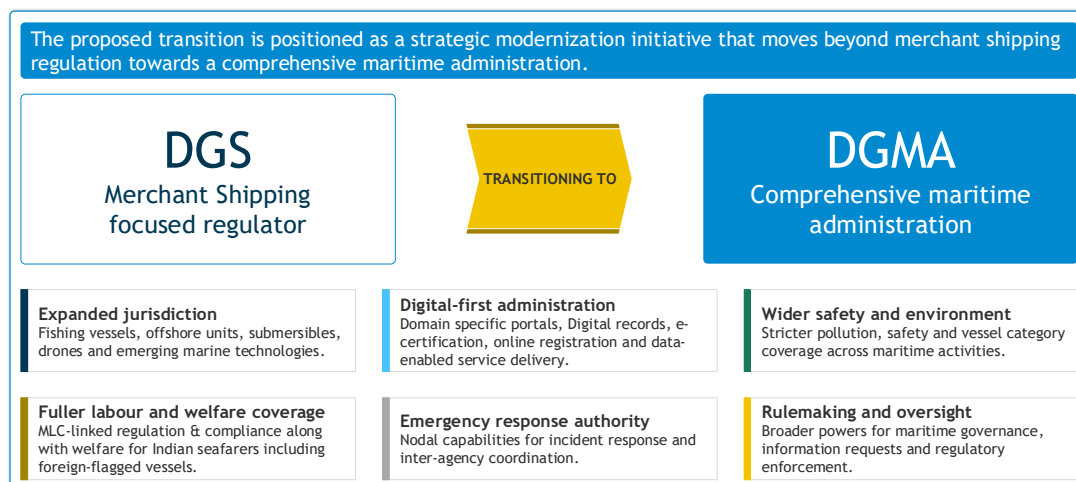
The authority will also assume a more active role in offshore operations, maritime emergency response, marine incident coordination, inland navigation oversight, and inter-agency maritime coordination. Statutory provisions under the Merchant Shipping Act, 2025 strengthen the maritime administration's ability to coordinate national-level maritime responses.

18.2. Strategic Outcomes

The transition is designed to achieve three strategic outcomes:

- A **Unified Mandate** that integrates fragmented maritime responsibilities under a single apex authority.
- A **Future-Ready Organization** capable of addressing emerging technological, environmental, and operational challenges.
- **Global Alignment** with maritime administrations operating in leading maritime nations such as Singapore, Australia, Norway, and the United Kingdom.

DGS to DGMA Transition



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Historically, DGS was designed primarily as a regulatory body for merchant shipping activities. While it has successfully discharged its statutory responsibilities for decades, the maritime sector has rapidly evolved, encompassing offshore operations, digital maritime services, environmental governance, inland waterways integration, maritime security, and advanced vessel technologies. These new realities require a broader institutional framework than that provided under the Merchant Shipping Act, 1958.

The proposed DGMA therefore represents a modern maritime governance model that aligns with international best practices and provides comprehensive oversight over the entire maritime ecosystem.

Expanded Jurisdiction

One of the most significant changes is the expansion of jurisdiction. Under the Merchant Shipping Act, 2025, the maritime administration will extend oversight beyond traditional merchant vessels to include fishing vessels, offshore units, submersibles, drones, autonomous maritime technologies, and emerging vessel categories. This reflects the changing nature of maritime activities and India's expanding blue economy ambitions.

Digital-First Administration

DGMA will adopt a digital-first governance model through integrated digital platforms supporting registration, certification, compliance monitoring, inspections, licensing, document management, and service delivery. This shift will significantly improve efficiency, transparency, and ease of doing business while reducing administrative burdens on stakeholders.

Wider Safety and Environmental Coverage

Unlike the existing framework, which is heavily centred on merchant shipping, DGMA will adopt a broader maritime safety and environmental governance mandate. Enhanced responsibilities will include pollution response, ballast water management, waste reception facilities, environmental audits, green shipping initiatives, and implementation of international climate commitments.

Fuller Labour and Welfare Coverage

The transition introduces stronger compliance with the Maritime Labour Convention (MLC) and extends labour protections and welfare measures to Indian seafarers serving on foreign-flagged vessels. This significantly enhances India's ability to protect its maritime workforce regardless of vessel registration.

Emergency Response Authority

The Merchant Shipping Bill, 2024 provides statutory authority for coordinated maritime incident response and inter-agency resource mobilization. This will enable DGMA to function as a nodal authority during maritime emergencies and environmental incidents, thereby enhancing national preparedness and response capability.

Enhanced Rulemaking and Regulatory Oversight

DGMA will be empowered with broader regulatory and oversight powers covering registration, compliance monitoring, maritime information requests, enforcement actions, and delegated rulemaking. These enhanced powers are intended to support a more responsive and contemporary regulatory framework aligned with international standards.

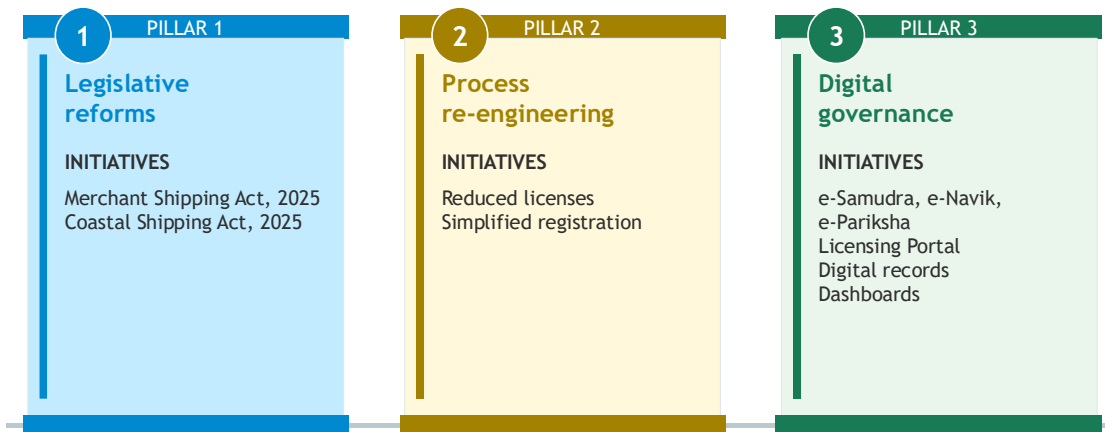
18.3. Why This Transformation Matters

The transition is essential because India's maritime ambitions now extend far beyond traditional shipping regulation. To achieve the goals of Maritime India Vision 2030 and Amrit Kaal Vision 2047, India requires an institution capable of regulating, developing, coordinating, digitizing, and modernizing the complete maritime ecosystem. DGMA is intended to provide that institutional platform.

DGMA EoDB Transformation Framework



Three coordinated streams connect statutory reform, process simplification and digital enablement.



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The Ease of Doing Business transformation framework outlines how DGMA will modernize maritime governance through three mutually reinforcing pillars: legislative reforms, process re-engineering, and digital governance. These pillars collectively provide the foundation for a simplified, transparent, and technology-enabled maritime administration.

Pillar 1: Legislative Reforms

The first pillar focuses on modernization of the legal framework governing maritime activities.

The recently passed **Merchant Shipping Act, 2025** and **Coastal Shipping Act, 2025** seek to replace legacy provisions with contemporary legislation that reflects modern operational realities, international conventions, technological developments, and environmental obligations. The objective is to establish a comprehensive legal framework capable of supporting future maritime growth while improving regulatory certainty and reducing ambiguities.

Key reforms include:

- Expanded jurisdiction across maritime sectors.
- Enhanced environmental and safety responsibilities.
- Improved labour and welfare protections.
- Greater regulatory flexibility.
- Simplified ownership and registration provisions.
- Stronger enforcement and emergency response mechanisms.
- Decriminalization and rationalization of minor procedural violations where appropriate.

Pillar 2: Process Re-engineering

The second pillar focuses on simplifying regulatory procedures and removing legacy inefficiencies.

Historically, stakeholders have faced lengthy approval timelines, documentation burdens, and fragmented processes. DGMA aims to redesign these processes from first principles to create faster, transparent, stakeholder-centric services.

Key initiatives include:

- Rationalization of licensing requirements.
- Reduction in duplicative approvals and inspections.
- Streamlined vessel registration processes.
- Simplified certification procedures.
- Faster service delivery timelines.
- Improved coordination among maritime agencies and stakeholders.
- Standardized workflows supported by digital tools and dashboards.

The intended outcome is a maritime regulatory environment that promotes investment, reduces compliance costs, and supports India's position as a globally competitive maritime nation.

Pillar 3: Digital Governance

The third pillar focuses on comprehensive digitization of maritime administration.

International best practices indicate that future maritime administrations must be built around integrated digital ecosystems. DGMA intends to develop an end-to-end digital environment that supports regulatory oversight, stakeholder services, data analytics, and evidence-based policymaking.

Major initiatives include:

e-Samudra

A unified maritime platform providing integrated service delivery, application processing, approvals, and stakeholder interfaces.

e-Navik

A digital ecosystem dedicated to seafarer services, certification, training records, competency management, and welfare administration.

e-Pariksha

A digitized examination and assessment framework supporting maritime education and certification processes.

Licensing Portal

An integrated portal supporting online licensing, renewals, approvals, inspections, and compliance management.

Digital Records and Data Governance

Creation of centralized maritime databases enabling seamless access to vessel, seafarer, certification, and regulatory records while improving transparency, accuracy, and data-driven decision-making.

Dashboards and Analytics

Real-time monitoring dashboards will support operational oversight, performance management, policy evaluation, risk identification, and stakeholder service tracking.

Together, these three pillars establish the foundation for an institution that is legally modern, operationally efficient, and digitally empowered. The EoDB framework is therefore not merely a digitization exercise but a comprehensive governance transformation that supports safety, sustainability, transparency, competitiveness, and maritime sector growth while positioning India to achieve its long-term maritime vision for 2030 and 2047.

