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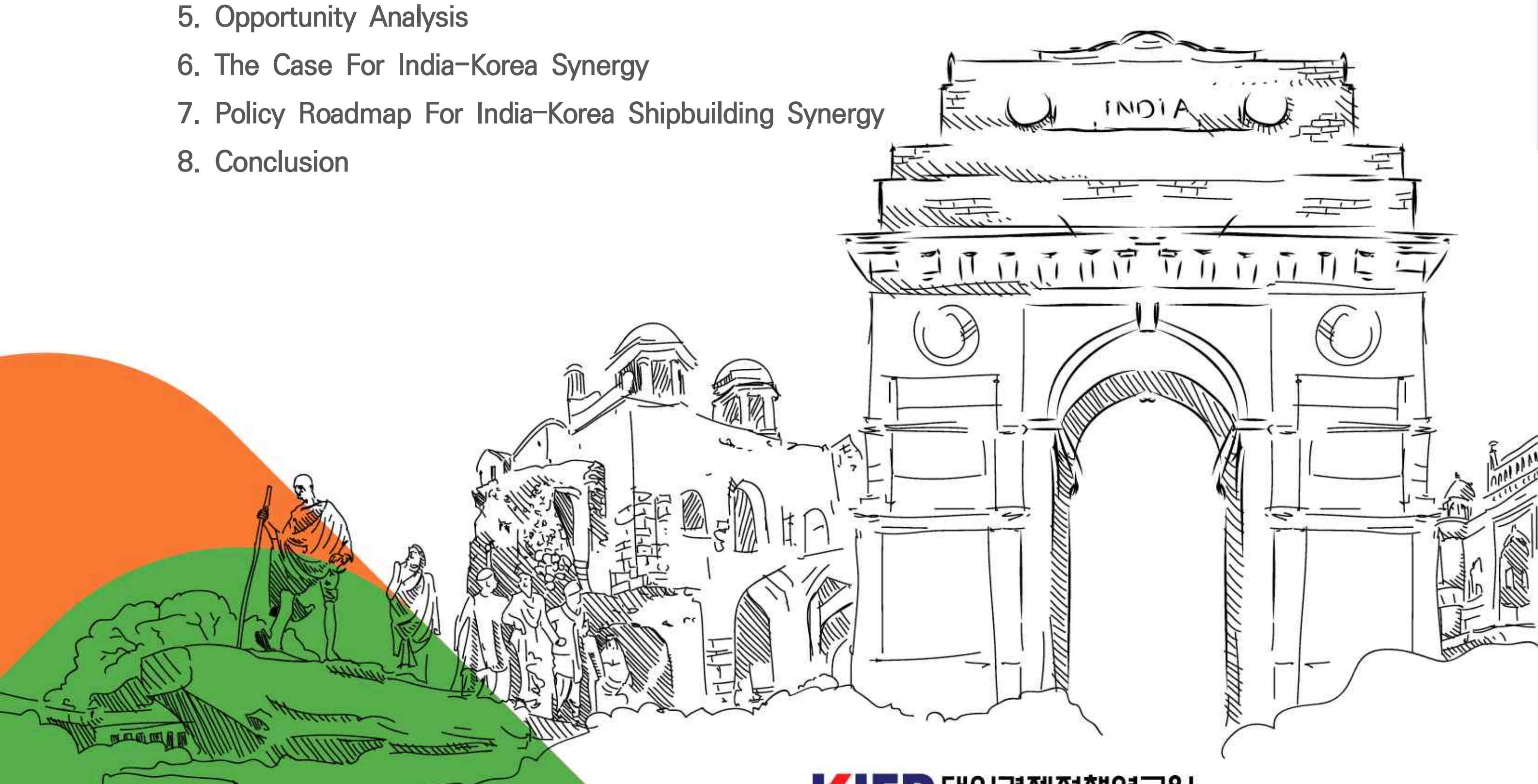
[Special Report]

India-RoK Prospects for Collaboration in Shipbuilding

(한-인도 조선 협력 전망)



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요 약 (원문)

▶ [Special Report] India-RoK Prospects for Collaboration in Shipbuilding

Shipbuilding is a strategic industry that has not only facilitated globalisation of trade but also created significant domestic economic multipliers by integrating upstream and downstream sectors including producing millions of direct and indirect jobs. Republic of Korea (Korea), placed 2nd in global shipbuilding rankings, has emerged as a global leader in technologically advanced, high-value vessels such as LNG and ULCCs delivering about 21 million CGT in shipbuilding. However, the Korean shipbuilding industry is export led but is grappling with acute labour shortages and rising material and machinery costs as digitisation and new material requirements become necessary for sophisticated shipbuilding. India ranks 16th Globally, delivers about 40,000 CGT but has set ambitious targets to become among the Top 5 Shipbuilding Nations by 2047. However, it lacks the capacity and capability though its domestic demand for ships exceed well over INR 40,00,000 crore to meet its EXIM, Coastal and Inland waterways cargo targets.

The Government of India and the State Governments of the coastal states have announced tectonic ship building policy documents incentivising the development of the entire shipbuilding ecosystem including ancillaries such as engines and steel – both vital elements of shipbuilding. This changed landscape has attracted foreign shipyards. The central argument advanced in this paper is that India and Korea occupy complementary positions in the global shipbuilding value chain, and that structured collaboration which lays foundational emphasis on technology transfer, joint production, supply chain integration, sales and marketing to third countries and co-development of green and digital technologies, can together create a mutually reinforcing pathway for the sustainable growth of this vital sector. Such a partnership would not only enhance competitiveness of the respective industries but also contribute to the broader reconfiguration of global shipbuilding in an era of tectonic technological and geopolitical transition.

The paper argues, that given the obvious synergies between the two ship building nations and the recent enormous success of the Presidential Visit to India, the pathway for synergistic collaboration for shipbuilding has been prepared. It is now the task of the industry, supported by academia, to take the next steps for the rapid growth of this strategic sector and reap its multiplier dividends in job creation and economic development of both countries.

Keywords: Shipbuilding, Shipping, Trade, EXIM Cargo, Shipyards, Maritime India Vision (2030), Maritime Amrit Kaal Vision (2047)

요 약 (국문)

▶ [특별판] 한-인도 조선 협력 전망

조선업은 글로벌 무역을 촉진했을 뿐만 아니라 상류에서 하류에 이르는 관련 산업을 통합함으로써 수백만 규모의 직접·간접 고용을 만들어 국내 경제에 큰 파급효과를 주는 전략 산업이다.

조선업 세계 순위 2위인 한국은 LNG선과 ULCC(초대형 원유탱커) 등 기술적으로 고부가가치가 높은 선박 분야에서 연간 약 2,100만 CGT(표준화물선 환산톤수)의 건조 실적을 올리며 세계 리더로서의 지위를 확립하고 있다. 그러나 수출 주도형인 한국 조선업은 첨단 조선기술에 필수적인 디지털화와 신소재 대응이 요구되는 가운데, 심각한 노동력 부족과 자재·기계비용 상승 등의 과제에도 직면하고 있다.

한편, 조선업 세계 16위로 연간 약 4만 CGT의 건조 실적을 가진 인도는 2047년까지 '글로벌 5위 국가'를 달성하겠다는 명확한 목표를 내걸고 있다. 무엇보다 인도 국내 선박 수요는 40조 루피를 넘는 수출입 화물, 연안수송, 내륙수로 수송의 각 목표를 달성하기 위해서 충분한 선박을 필요로 하지만, 현재는 그 수요를 충족할 만큼의 건조 능력과 체제가 부족하다. 이에 따라, 인도 중앙정부 및 해안을 접한 주 정부들은 조선에 필수적인 요소인 엔진 등 관련 산업을 포함한 조선 생태계 구축을 지원하는 조선업 진흥 정책을 잇달아 발표했다. 이러한 환경의 변화는 해외 조선기업의 관심을 끌고 있다.

본고의 핵심적인 주장은 인도와 한국이 세계 조선 가치 사슬에서 상호 보완적인 관계에 있다는 점이다. 양국이 기술이전, 공동생산, 공급체인 통합, 제3국 대상 공동판매·마케팅, 그리고 친환경 기술과 디지털 기술의 공동개발을 바탕으로 체계적인 협력을 추진하면 상호 경쟁력 강화의 길을 함께 열 수 있다는 것이다. 이러한 파트너십은 양국 각각의 조선산업의 경쟁력을 높일 뿐만 아니라 기술과 지정학적 변혁기를 맞고 있는 현 시점에서 세계 조선산업 전체의 재편이라는 광범위한 움직임에도 기여하게 될 것이다.

본고는 한-인도 사이에 존재하는 협력 잠재력에 더해, 최근 한국 대통령의 인도 방문에 따른 후속조치 등을 감안하면, 조선 분야에서 시너지 효과적인 협력을 위한 환경은 이미 갖추어져 있다고 판단한다. 이제 R&D 활동과 더불어, 산업계 스스로가 주체가 되어 전략 산업의 급속한 성장을 구현함과 동시에 양국에서의 고용 창출과 경제발전이라는 형태로 발전시키는 것이 주요한 과제다.

키워드: 조선, 해운, 무역, 수출입 화물, 조선소, 해양 인도 비전(2030), 해양 암리트 칼 비전(2047)

Special Report

India-RoK Prospects for Collaboration in Shipbuilding

Sujeet Samaddar

1. Introduction

1.1 Overview

Shipbuilding has historically functioned as both a strategic industry and an economic multiplier, linking maritime trade, industrial production, technological innovation, and national security in one consolidated eco-system. In the contemporary global economy characterised by shifting supply chains, decarbonisation imperatives, and geopolitical fragmentation, the sector has regained prominence as a pillar of national industrial policy. The ability to design, construct, and maintain maritime assets is no longer merely a commercial capability, it is increasingly viewed as an essential component of economic resilience, technology stewardship, and strategic autonomy.

Globally, shipbuilding has exhibited a persistent tendency toward geographic concentration shipbuilding expertise early lay in European shipyards, but over the past three decades, production has consolidated overwhelmingly in East Asia, particularly in China, Korea, and Japan, which together account for the majority of global output and order books. This concentration has been driven by coordinated industrial policy, access to capital, strong ancillary ecosystems, and sustained investment in research and development. Among them, Korea has emerged as a global leader in technologically sophisticated, high-value vessels, including liquefied natural gas (LNG) carriers and ultra-large container ships. Meanwhile, China has leveraged scale and cost competitiveness to dominate volume segments.

India, by contrast, presents a paradox. Despite its extensive coastline, growing trade volumes, and strong engineering base, its shipbuilding industry remains underdeveloped relative to its potential. Once a major centre of seafarers and shipbuilders, the sector has historically suffered from fragmented policy support, limited scale, high financing costs, and weak integration with global supply chains. India now accounts for only a marginal share of global shipbuilding output despite favourable factor endowments such as low labour costs and a large domestic market. This underperformance is particularly striking in light of India's broader ambitions to become a major maritime and manufacturing power by 2047.

At the same time, structural shifts in the global shipbuilding industry are creating new oppor tunities for collaboration. The transition toward green shipping, driven by International Maritime Organization (IMO) regulations, is reshaping demand patterns toward alternative-fuel vessels and energy-efficient technologies. Concurrently, digitalisation including automation, artificial intelligence, and smart ship systems is transforming production processes and operational capabilities. These transitions are raising entry barriers while simultaneously opening niches for new entrants and partnerships.

In this context, the potential for strategic collaboration between India and Republic of Korea (Korea) becomes highly significant. Korea brings advanced technological capabilities, established global market access, and expertise in high-value ship segments. India offers cost advantages, a large and growing domestic demand base, and an opportunity for capacity expansion unlike Korean yards which face space constraints, labour shortages and rising costs. The complementarities between the two economies suggest that a carefully structured partnership could generate mutual benefits while addressing structural constraints faced by each country.

This paper seeks to examine the scope for such synergies in a systematic manner. It begins by situating the discussion within the broader context of global shipbuilding trends, including capacity dynamics, technological shifts, and evolving market structures. It then provides a detailed overview of the Indian and Korean shipbuilding industries, highlighting their respective strengths, weaknesses, and policy frameworks. Building on this analysis, the paper identifies key opportunities and challenges in bilateral cooperation and develops a conceptual framework for India-Korea collaboration for shipbuilding.

The central argument advanced in this paper is that India and Korea occupy complementary positions in the global shipbuilding value chain, and that structured collaboration which lays foundational emphasis on technology transfer, joint production, supply chain integration, sales and marketing to third countries and co-development of green and digital technologies, can together create a mutually reinforcing pathway for the sustainable growth of this vital sector. Such a partnership would not only enhance competitiveness of the respective industries but also contribute to the broader reconfiguration of global shipbuilding in an era of tectonic technological and geopolitical transition.

1.2 Shipbuilding and the Economy

Shipbuilding lies at the core of global economic integration, underpinning the physical supply of minerals, merchandise and resources across continents to address demands of profitable markets distanced by land but made proximate by oceans. Marine transportation has been a defining feature of facilitating global trade expansion in recent decades. Many nations have experienced economic growth by opening new markets and extending supply chains through maritime transport. The UNCTAD report states "*Maritime transport is the backbone of global* *trade, moving over 80 per cent of goods traded worldwide by volume. It connects global value chains, carrying raw materials and semi-processed goods to production hubs and delivering finished products to consumers. These flows are vital for industrialization, economic growth and job creation*" [1]. This emphasis on maritime routes is rendering maritime infrastructure indispensable to the functioning of international commerce and accessing global supply chain s. Consequently, countries heavily reliant on shipping for trade see increased demand for ship ping services and to maintain strategic control over cargo shipments are placing increasing emphasis on ownership or "flagging" and, in fact, domestic shipbuilding. As global trade expa nds, a capable domestic shipbuilding industry reduces foreign dependence, boosts exports, and supports strategic autonomy by securing maritime routes and access to multiple and diver se global value chains.

With growing global demand for materials merchandise and markets a strong shipbuilding industry can create multiplier effects, driving growth and creating millions of jobs. Shipping cargo at lowest cost compared to other modes of transportation promotes demand for ships for carriage of this cargo. Beyond the construction of vessels, shipbuilding constitutes a compl ex industrial ecosystem that integrates upstream and downstream sectors, including steel prod uction, advanced materials, marine electronics, propulsion systems, digital design engineerin g, port logistics, and maintenance services. A widely cited benchmark[2] comes from a detailed U.S. maritime industry study, which states that "every US$1 of direct shipbuilding generates about US$3.4 in total economic output (compared to US$2 for construction and US$2.2 for the automotive industry) and every 100 shipyard jobs support ~360-370 total jobs across the economy, an income multiplier by way of a requirements for high-skilled and high-wage empl oyment.70-80 per cent of a ship's value comes from supplier industries (steel, engines, electro nics, software, etc.). Promoting the shipbuilding industry also stimulates related sectors".

Shipbuilding is locally assembly intensive but value extensive globally. As the OECD report notes, "The shipbuilding value chain is characterised by a high degree of vertical disaggregati on, wherein the shipyard functions primarily as a system integrator. In major shipbuilding eco nomies, direct value added accounts for between 20% and 30% of shipbuilding output value. In turn 70- 80%, the lion's share of the value of output, comes from intermediate inputs[3]".

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1) "Shipping data: UNCTAD releases new seaborne trade statistics".
(Source: https://unctad.org/system/files/official-document/rmt2025_en.pdf. Accessed on 04April2026.)

2) "The Economic Importance of the U.S. Private Shipbuilding and Repairing Industry Maritime Administration (MARAD)" (March 30, 2021.) (Source:
https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-06/Economicpercent20Contributionspercent20ofpercent20U.S.percent20Shipbuildingpercent20andpercent20Repairingpercent20Industry.pdf?utm_source=chatgpt.com, Accessed on 04 April 2026.)

3) "Global value chains and the shipbuilding industry" OECD Science, Technology and Industry Working Papers, (2019).
(Source: https://www.oecd.org/content/dam/oecd/en/publications/reports/2019/11/global-value-chains-and-the-shipbuilding-industry_0f7acf43/7e94709a-en.pdfAccessedon11April2026.)

The top five supplier industries to shipbuilding are iron and steel, feeder shipyards (module fabricators), wholesale trade for cabling, pumping and ducting, marine machinery electronics and equipment, as well as fabricated metal products. Hence, large extent of design and engine ering expenses and production costs surge into diverse upstream industries requiring extensiv e subcontracting leading to strong consumption multipliers and wide spectrum expertise provi ding distributed industrial benefits as shown in Table 1 below and depicted in Figure 1.

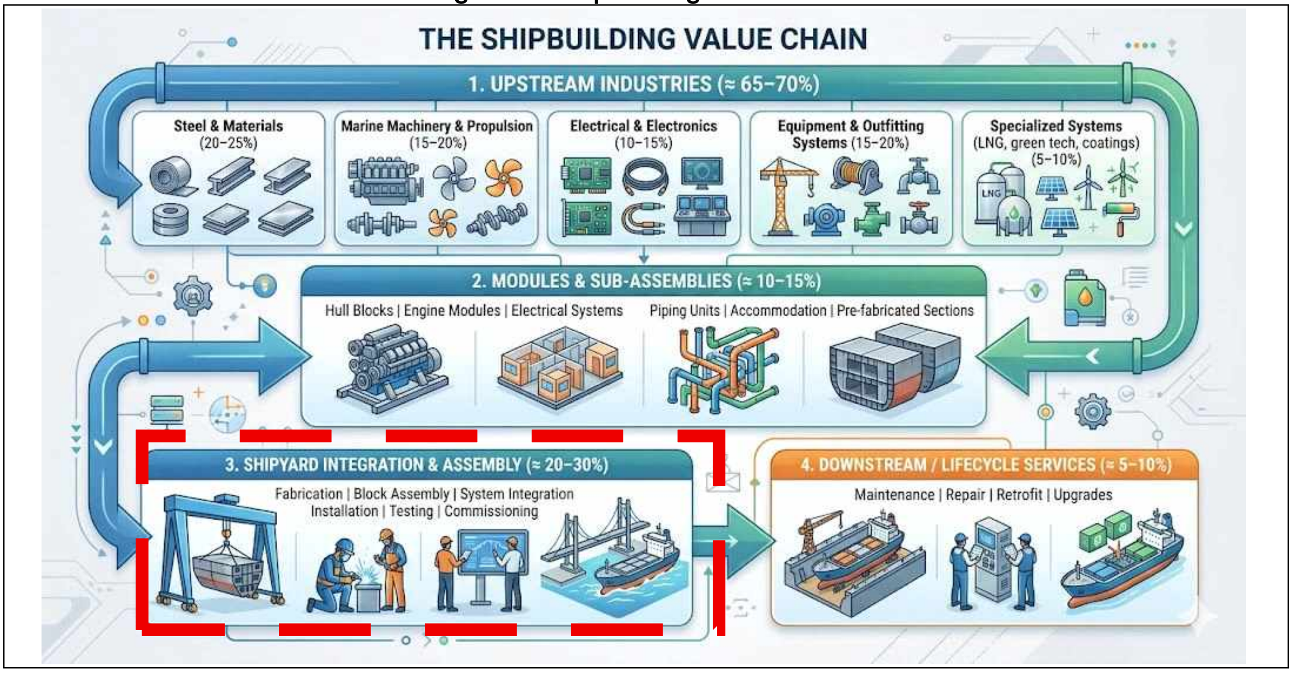
Table 1. Shipbuilding Elements and Value Contribution

Segment	Description	Share of Total Ship Value (%)
Hull & Structure (Steel)	Ship structure, plates, fabrication, basic construction	20-25
Machinery & Propulsion Systems	Main engine, propulsion, shafting, auxiliary engines	15-20
Electrical & Electronic Systems	Navigation, communication, sensors, automation, control systems	10-15
Outfitting & Equipment	Pumps, piping, HVAC, deck machinery, safety systems, accommodation	15-20
Design, Engineering & Integration	Naval architecture, system integration, project management	5-10
Shipyard Labour & Overheads	Assembly, welding, yard operations, overhead costs	10-15
Other Systems (Specialised)	LNG containment, advanced materials, green tech systems (varies by vessel)	5-10

The shipyard's core expertise and work share is concentrated in hull fabrication, modular assembly, system integration, and final testing, commissioning and delivery to the end custom er. Being capital-intensive shipbuilding demands advanced technology, skilled labour, and rob ust policy backing. This business model underscores the importance of a broad-based industri al ecosystem in determining national competitiveness in shipbuilding. Hence, shipyards functi on not merely as production centres but as system integrators within a broader industrial ecos ystem, with the wider economic footprint of shipbuilding estimated to be multiple times its direct output[4].

4) "Global value chains and the shipbuilding industry" OECD Science, Technology and Industry Working Papers, (2019).
(Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2019/11/global-value-chains-and-the-shipbuilding-industry_0f7acf43/7e94709a-en.pdfAccessedon11April2026.)

Figure 1. Shipbuilding Value Chain



2. Global Shipbuilding - A Status Check

2.1 Shipbuilding Market Trends – Order Books and Deliveries

Shipbuilding is a capital-intensive industry with long production cycles and strong exposure to global trade fluctuations. It is also heavily shaped by government support through financin g, industrial policy, and export incentives, given its sensitivity to costs and working capital[5].

The global shipbuilding industry is entering a new growth phase, supported by rising mariti me trade, tightening environmental regulations, and the need to renew ageing fleets. The Ship building Market was valued at US$ 157.21 billion in 2025 and estimated to grow from US$ 164.47 billion in 2026 to reach US$ 206.24 billion by 2031, at a Compound Annual Growth Rate (CAGR) of 4.62 per cent during this forecast period (2026-2031)[6]. This expansion is bein g driven by several structural factors, including decarbonization mandates from the Internatio nal Maritime Organisation (IMO), requiring the replacement of older vessels with more fuel-eff icient and environmentally compliant ships, and the sustained growth in global seaborne trad

5)“Reviews of Shipbuilding Economies.”
(Source:https://www.oecd.org/content/oecd/en/search/publications.html?q=shipbuilding&orderBy=mostRelevant&page=0&facetTags=oecd-languages%3Aen)
6) “Shipbuilding Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)”
(Source: https://www.mordorintelligence.com/industry-reports/ship-building-market.Accessedon03April2026.)

e[7].

The strength of the industry is reflected in the scale of the global orderbook. By late 2025 and early 2026, the global shipbuilding orderbook had climbed to a fifteen-year peak, reaching about 7,560 vessels with a combined total of roughly 316 million gross tons (GT) the highest level recorded since 2010[8]. Between January and November 2025, global shipyards delivered about 70 million GT of new vessels, representing an increase of around 7 per cent compared with the same period in 2024[9].

The sector-wise orderbook data illustrates the distribution of demand across different vessel types. Several key segments dominated the shipbuilding market in 2025. By vessel type, bulk carriers held the largest share at 36.74 per cent, while offshore support vessels are expected to grow the fastest with a 4.71 per cent CAGR until 2031. As per Veson Nautical[10], orders for bulk carriers totalled 396 units in 2025, the lowest annual figure since 2019. This occurred despite an increase in contracts from 169 vessels in the first half of the year to 227 in the second half of 2025.

However, ordering activity in the gas carrier segments declined sharply. Veson Nautical[11] recorded only 44 LPG carrier orders in 2025, down from 148 units in 2024, representing a 70 per cent drop. Orders for large LNG carriers fell by 48 per cent year-on-year to 35 vessels, compared with 69 in 2024. Meanwhile, contracting activity for small-scale LNG vessels remained broadly stable, with 26 ships ordered in 2025 versus 25 in 2024[12].

In the tanker sector, total orders fell 43 per cent year-on-year to 291 units, compared with 511 in 2024. Veson Nautical attributed the decline to shipyard capacity constraints, extended delivery timelines stretching into 2028-2029, and growing owner caution following rapid fleet expansion in recent years.

Despite these adjustments, the relatively high orderbook ratios across most vessel segments indicate sustained investment in fleet renewal and technological upgrades, particularly vessels capable of operating on alternative fuels such as LNG, methanol, or ammonia. Figure 2 shows the trends in new order and deliveries for the period 2010 to 2024.

7) "Shipbuilding Market Size Report". Allied Market Research.
(Source: https://www.alliedmarketresearch.com/press-release/shipbuilding-market.htmlAccessedon03April2026.)
8) "Global orderbook at 15-year high as 2025 activity eases".
(Source:https://www.rivieramm.com/news-content-hub/news-content-hub/global-orderbook-at-15-year-high-as-2025-activity-eases-87202#:~:text=17percent20Decpercent202025bypercent20Georgios,thepercent20samepercent20periodpercent20lastpercent20year. Accessed on 03 April 2026.)
9) Ibid
10) Ibid
11) Ibid
12) "Global orderbook at 15-year high as 2025 activity eases".
(Source:https://www.rivieramm.com/news-content-hub/news-content-hub/global-orderbook-at-15-year-high-as-2025-activity-eases-87202Accessedon03April2026.)

Figure 2: Shipbuilding Orders and Deliveries[13)]

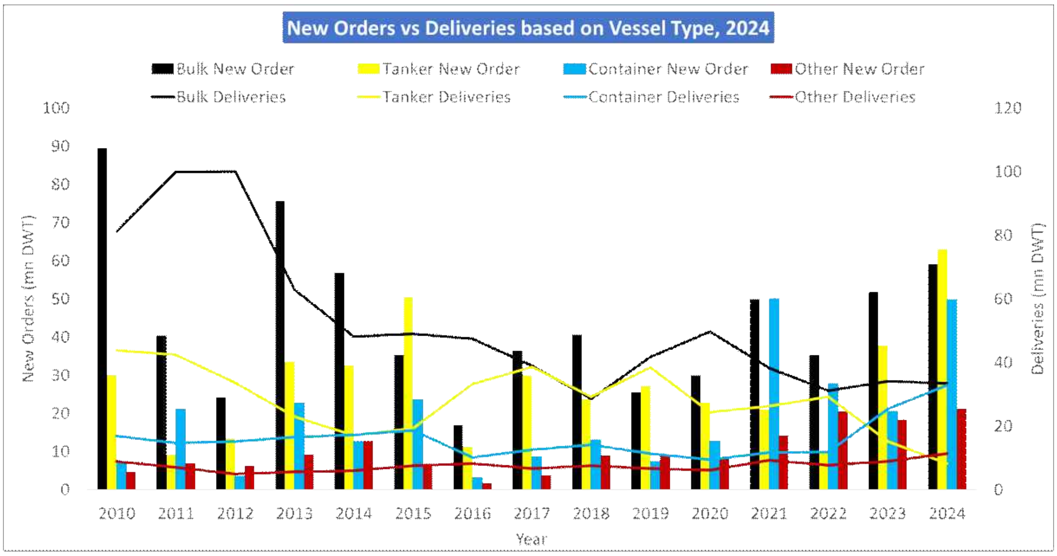


Table 2. Order to Delivery Ratio[14)]

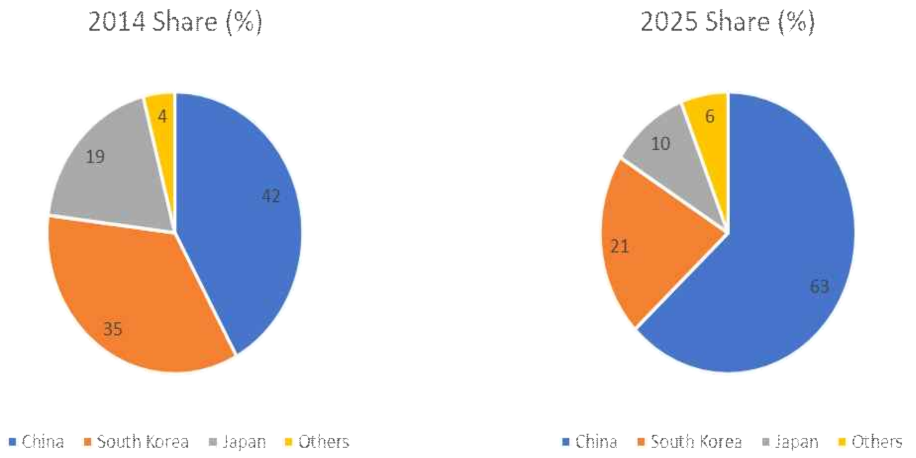
Year	Order Book (OB)			New Orders (2025)			Deliveries (2025) (D)			Ratio OB to D		
	China	Japan	Korea	China	Japan	Korea	China	Japan	Korea	China	Japan	Korea
2022	121.9	38.4	65.7	49	17.1	23	38.3	15.6	23.7	3.18	2.46	2.77
2023	162.2	17.1	23	84.2	20.4	19.4	42.7	15.4	22.3	3.8	1.11	1.03
2024	260.8	15.6	23.7	146.9	14.5	22.3	47.8	13.9	20.9	5.46	1.12	1.13
2025	295.4	14.2	22.8	120.5	12.8	20.1	50.5	12.7	19.5	5.85	1.12	1.17

At the same time, capacity dynamics present a more complex picture. Shipbuilding is a cyclic industry with well-defined crests and troughs. The global merchant shipbuilding market has entered a prolonged supercycle. Total new orders in the big three shipbuilding countries surged to 193.1 million DWT in 2024, dramatically outpacing deliveries of 86 million DWT in the same year, a gap that reflects robust forward demand, capacity constraints in top-tier yards, and a generational shift in fleet modernisation driven by environmental regulations and energy transition imperatives.[15)] But, new orders moderated to 153.4 million DWT in 2025 though deliveries also declined to 80.7 million DWT. This imbalance between orders and deliveries has created unprecedented order book depth across the three dominant shipbuilding nations namely China, Korea, and Japan, with Chinese yards committed for 5.85 years of shipbuilding orders as shown in Table 2 above.

13)Authors Compilation prepared from relevant Review of maritime Transport Reports.
14) Review of Maritime Transport. Relevant Reports.
15) "Shipping and Shipbuilding Markets" BRS Group.
(Source:https://it4resources.interactiv-doc.fr/catalogues/annual_review_2025_digital_668/galeries/1743515401annual_rev.pdf)

Clarksons projects that global shipbuilding output in 2025, measured in DWT, will be roughly 40 per cent higher than the trough recorded in 2020 during the COVID-19 downturn[16]. According to Clarkson data released on January 7, 2026, global new ship orders for 2025 totalled 2,036 vessels at 56.43 million Compensated Gross Tonnage (CGT) (which captures the work and effort in building different types of ships), marking a 27 per cent decline from 2024's 76.78 million CGT. Chinese shipyards secured the largest share of orders, receiving about 1,421 vessels totalling approximately 35.37 million CGT. Although this represented a year-on-year decline of about 35 per cent, China still maintained a commanding global market share of around 63 per cent, reinforcing its position as the world's leading shipbuilding nation[17].

Figure 3. Share of Global Shipbuilding in 2014 and 2025[18]



As depicted in Figure 3, between 2014 and 2025, global shipbuilding shifted from a balanced three-way competition to a China-dominated industry. In 2014, China and Korea were closely matched, with Japan a strong third player. By 2025, China commands nearly two-thirds of global orders, driven by capacity expansion, cost advantages, integrated supply chains, and sustained state support. It now dominates high-volume segments such as bulk carriers, tankers, and container ships. Going forward, China is expected to drop to a share of about 52 per cent of global shipbuilding output, while Korea will contribute approximately 27-28 per cent, and Japan around 12-13 per cent.[19]

16) "Global new ship orders drop 44.5% in the first ten months of 2025." PortNews.
(Source: https://en.portnews.ru/news/385436/Accessedon04April2026.)

17) "SunSirs: China's Shipbuilders Secure 1,421 New Ship Orders in 2025, Maintaining Global Leadership in Order Volume", January 12, 2026.
(Source:https://www.sunsirs.com/commodity-news/petail-29602.html#:~:text=Accordingpercent20topercent20Clarksonpercent20datapercent20released,marketpercent20sharepercent20topercent20rankpercent20second.Accessedon04April2026.)

18) Review of Maritime Transport 2014 and 2025 editions.

19) Ibid.

The “Others” category remains small, reflecting high entry barriers and strong industry conc entration. Among the emerging players, the Philippines and Vietnam follow different paths from each other. The Philippines, ranked fourth globally in 2025, has built its position on cost-efficient skilled labour and foreign-backed shipyards, focusing on high-volume, less com plex vessels. However, output has declined since its 2014-15 peak as these shipyards now face s major constraints including requiring upgrades in material handling and fabrication facilitie s, limited suppliers for engines and consequent reliance on imported components that raises production costs and delivery risks, and domestic ancillary industries remain underdeveloped.

While exports drive production, locally owned yards mainly handle repairs, which dominate domestic activity and form a significant share of both local and foreign demand[20]. In propulsi on technology, conventional engines maintained a 72.85 per cent market share, though metha nol and ammonia ready fuel propulsion designs are projected to expand at a 4.86 per cent CAGR[21].

Vietnam, by contrast, is increasingly recognized for its favourable quality-to-cost ratio, supp orted by investments in maritime education and a growing influx of foreign direct investment. An ESCAP report notes, “Shipbuilding industry is identified in Vietnam as a key mechanical sector, that plays an important role in the country's industrial development structure”. In the last decade Vietnam's shipbuilding industry has made impressive strides having built 53,000 DWT cargo ships, 4900 car equivalent unit carriers, 3000 TEU container ships, etc. and is grad ually asserting itself in the international market in the low cost small ship transportation segm ent[22].

2.2 Global Competitive Strengths and Technology Mapping

As brought out, the East Asian yards dominate both new orders and deliveries. China leads global shipbuilding through scale and rapid adoption of smart manufacturing, AI-assisted desi gn, and modular construction, alongside advances in LNG, hydrogen-ready vessels, and VLEC s. Korea follows a high-value strategy, specializing in complex ships like LNG carriers and VLCCs, supported by digital twins, robotics, and precision engineering.

Japan, despite declining market share, remains strong in efficient vessel design, fuel optimiz

20) “Peer Review of the Philippines Shipbuilding Industry”, OECD Reviews of Shipbuilding Economies, 1 September 2025.
(Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/09/peer-review-of-the-philippines-shipbuilding-industry_2ab9bba9/d1b077e1-en.pdf.Accessed12April2026.)

21) “Shipbuilding Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)”
(Source: https://www.mordorintelligence.com/industry-reports/ship-building-market.Accessedon03April2026.)

22) “Shipping and autonomous shipping technologies development - study report of Vietnam”. ESCAP.
(Source:https://www.unescap.org/sites/default/d8files/event-documents/VietNam_national-study-report-on-autonomous-shipping.pdfAccessed11April2026.)

ation, and advanced automation, with growing focus on hydrogen technologies and predictive maintenance. Turkey stands out for flexibility, excelling in customized, time-sensitive builds such as naval exports and niche commercial vessels.

Europe focuses on the cruise, vessels and yachts and scientific exploration and research vess els. Italy leads in cruise ships and emerging technologies like fuel cells and 3D printing, while Germany excels in sustainable engineering and very specialized niche technology vessels[23]. The United States, though limited in commercial output, dominates naval shipbuilding throug h advanced systems integration and strong government support. A summary of the key strengt h and specialisations of the foremost shipbuilding nations is placed at Table 3.

Table 3: Comparative Technical Strengths of Major Shipbuilding Nations[24]

Country	Key Strengths	Technology & Specializations
China	Unmatched scale, state-driven innovation, global leader in green & smart shipbuilding, strong govt support	Smart MEGA yards, LNG/H_2 vessels, AI-aided design; Very Large Ethane Carrier (VLEC).
S. Korea	Tech-driven, highly efficient, govt financial backing, global strategic acquisitions.	Digital twin tech, LNG, Robotics, Eco-design; LNG fuel ships, VLCCs, Offshore rigs, Robotic Welding, Next generation Ammonia Carriers.
Japan	Precision-focused, automation-driven, sustainability-first shipbuilding, low consumption and low emission ships.	Hydrogen fuel tech, AI maintenance systems; cutting-edge hydrodynamics and optimized hulls, Car carriers, LNG/LPG tankers,
Phili ppines	Cost-efficient, skilled labor, tightly integrated into regional supply chains, Technology adoption through partnerships	Workmanship, skills of engineers for high volume less complex ships
Vietnam	Excellent balance of the quality/cost ratio, strategic access to Southeast Asia, Govt policies and foreigner investment	Very good maritime technical education system, innovation.
Turkey	Flexible and fast-turnaround yards, strong in naval exports and niche builds, tugboats, and mid-sized cargo ships	Alternate Fuel Tugs
Italy	Premium cruise design, artistic & engineering excellence	Cruise ships, Fuel cells, utilizing AI & digital technology like 3D printing
Germany	Engineering precision, green propulsion R&D, excellence in specialized vessels, research vessels and mega-yachts	Hybrid-electric cruise ships, Wind-assisted propulsion tech, Next-gen antifouling coatings, Zero-emission ship R&D & digital shipyards
USA	Military shipbuilding, tech-driven R&D at systems and equipment levels	System Integration, complex warships and submarines, offshore vessels and energy sector ships,

23) “Peer Review of the German Shipbuilding Industry”,OECD Reviews of Shipbuilding Economies. (Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2017/03/peer-review-of-the-german-shipbuilding-industry_f57d3356/62eaa543-en.pdfAccessedon8May2026.)

24) Authors Compilation from several reports and papers.

Several key trends are shaping the future trajectory of the industry. Foremost among these is the transition toward environmentally sustainable shipping, driven by regulatory framework s established by the International Maritime Organization[25]. Shipbuilders are increasingly inve sting in alternative propulsion systems, including LNG-fuelled vessels, as well as emerging tech nologies based on methanol, ammonia, and hydrogen fuels. Parallel to this is the importance of supply chain integration. Leading shipbuilding nations maintain tightly knit ecosystems enc ompassing steel production, marine equipment manufacturing, and advanced design and rese arch capabilities, which together enhance efficiency and reduce costs.

In summary, China leads bulk carriers and containers by volume, Korea dominates LNG carr iers and high-specification tankers, and Japan retains competitiveness in selected conventiona l segments, whilst Vietnam and Philippines rule the lowcost bulker and tanker market.

In response, the European Union, in a bid to resurrect the maritime industry prepared the EU Industrial Maritime Strategy and is now being financed[26]. On similar lines the United King dom created the National Shipbuilding Office[27]. President Donald J Trump stated whilst relea sing the USA Action Plan on Maritime Dominance stated "We will soon revitalize our once-gre at shipyards with hundreds of billions of dollars in new investments and people coming from all around the world…to build ships in America. We want them built in America"[28]. These new initiatives suggest a natural push back to constrain the dominance of East Asian Countries in Shipbuilding. Japan, released the Shipbuilding Industry Revitalization Roadmap at the end of 2025, setting a target of doubling domestic shipbuilding volume to 18 million gross tons by 2035 compared with 2024 levels, thereby establishing domestic capacity sufficient to meet Japanese shipowners' demand. To achieve this goal, the government announced a policy to support capital investment by the domestic shipbuilding industry through a ¥350 billion fund implemented in three stages[29].

Since, global shipbuilding competitiveness comes from aligning scale, technology, policy su pport and market focus, for India, the goal should be to combine elements of China's scale, Korea's technological specialization, Japan's efficiency, and the cost advantages of countries like Vietnam and the Philippines, while building a strong domestic atma nirbhar ship building

25) "IMO Strategy on Reduction of GHG Emissions from Ships". International Maritime Organization.
(Source:https://www.imo.org/en/ourwork/environment/pages/2023-imo-strategy-on-reduction-of-ghg-emissions-f rom-ships.aspxAccessedon05April2026.)
26) "EU Maritime Industry Strategy".
(Source:https://transport.ec.europa.eu/news-events/news/commission-launches-industrial-maritime-strategy-com petitive-sustainable-and-resilient-eu-maritime-2026-03-04_enAccessedon04April2026.)
27) "UK National Shipbuilding Office".
(Source: https://www.gov.uk/government/groups/national-shipbuilding-officeAccessedon04April2026.)
28) "America's Maritime Action Plan". The White House.
(Source: https://www.whitehouse.gov/maritimemight/Accessed05April2026.)
29) "Strengthening the international competitiveness of the shipbuilding industry".
(Source: https://www.mlit.go.jp/maritime/maritime_tk5_000014.htmlAccessed 05 May 2026.)

ecosystem that reduces supply chain risks. No country dominates all vessel types. Hence, creating a segmented market where India, in partnership with Korea, can target niches such as green and alternative-fuel vessels, coastal and inland shipping, and mid-complexity ships could herald a new era in productive partnerships. Direct competition with China in mass bulk production is impractical, but higher-value segments, like advanced vessels and next-generation technologies offer long-term opportunities as markets begin to drive demand. With focused investment, technology partnerships, and consistent government support, India in partnership with Korea, can build competitiveness, strengthen self-reliance, and expand its presence in global shipbuilding exports.

2.3 Global Trade and Shipbuilding

As the Table 4 below[30] depicts, global trade has doubled from about 6 billion tonnes in 2000 to about 12 billion tonnes in 2025. In the same period the world shipping fleet has trebled in capacity from about 800 MMT to 2,440 MMT. The Trade to Fleet ratio has also moderated from 7.4 in 2000 to 4.9 in 2025 which could be reflective of overcapacity in the sector.

Table 4. Global Trade and Shipping

Year	Trade (MMT)	Fleet (DWT, MMT)	Trade / Fleet Ratio
2000	5,983	808	7.4
2005	7,100	960	7.4
2010	8,400	1,450	5.8
2014	9,816	1,800	5.5
2019	11,076	2,100	5.3
2020	10,650	2,160	4.9
2023	11,600	2,340	5
2025	11,950	2,440	4.9

The apparent divergence between the growth of global seaborne trade and the expansion of fleet capacity, often interpreted as evidence of structural overcapacity, requires a more nuanced reading. While aggregate indicators suggest that global merchant fleet capacity has grown faster than trade volumes over the past two decades, this does not imply a uniform surplus of usable shipping capacity. Overcapacity is typically concentrated in specific segments, such

30) Based on Authors aggregation of Trade and Shipping Data from various sources.

as older bulk carriers or conventional tankers, while other segments, particularly liquefied nat ural gas (LNG) carriers, dual-fuel vessels, and environmentally compliant tonnage, face tight supply conditions. Moreover, effective demand for shipping is increasingly shaped by "ton-mil e" cost dynamics rather than simple "volume and voyage" metrics, with geopolitical disruption s and route diversions lengthening voyage distances and absorbing available capacity. Thus, aggregate fleet expansion masks important qualitative and operational constraints that limit the substitutability of vessels across segments.

A second limitation of the overcapacity argument lies in its static interpretation of demand in a context of profound technological and regulatory transition. The ongoing decarbonisatio n of maritime transport, driven by evolving IMO standards, is expected to render a significant portion of the existing fleet commercially unviable or legally obsolete over the coming decade s.

From a strategic perspective, the concentration of global shipbuilding capacity in a small number of countries further weakens the inference that global overcapacity obviates the need for new entrants. The issue is not merely the quantity of ships, but the geographic and technol ogical concentration of the industrial base and geographical shipping terminals they address and the yards that builds them.

India's position in global trade presents a notable structural asymmetry when examined thro ugh the lens of maritime volume versus value as Table 5 shows, while India accounts for about 2-3 per cent of global merchandise trade by value, its share having risen to roughly 2.5 per cent in recent years, it handles a significantly larger share of global seaborne cargo by volume estimated at approximately 13 per cent[31)]. This higher volume share reflects the country's role as a major importer of bulk commodities such as crude oil, coal, and iron ore, as well as a growing participant in containerized trade.

According to data compiled by the UNCTAD, global seaborne trade volumes are in the range of approximately 11.5 - 11.6 billion tonnes annually in recent years while Indian port through put amounts to roughly 1.4 - 1.6 billion tonnes per annum[32)]. This divergence underscores the bulk-intensive nature of India's trade basket and highlights a broader strategic gap which shows that despite being a major maritime trading nation in volumetric terms, India continues to have a negligible presence in global shipbuilding[33)].

31) "World Trade Statistical Review, Key Insights and Trends in 2025". World Trade Organisation. (Source: https://www.wto.org/english/res_e/statis_e/world_trade_statistics_e.htmAccessedon15March2026.)

32) UNCTAD, Review of Maritime Transport (various years). Ministry of Ports Shipping and Waterways India, Annual Port Throughput Statistics; World Trade Organization, World Trade Statistical Review.

33) India's share in Global Shipbuilding is only 0.06 per cent and ranks 16thinshipbuilding.Source:UNCTAD,ReviewofMaritimeTransport,2024.

Table 5. India's Growth of Global Seaborne Trade by Volume and Value[34)]

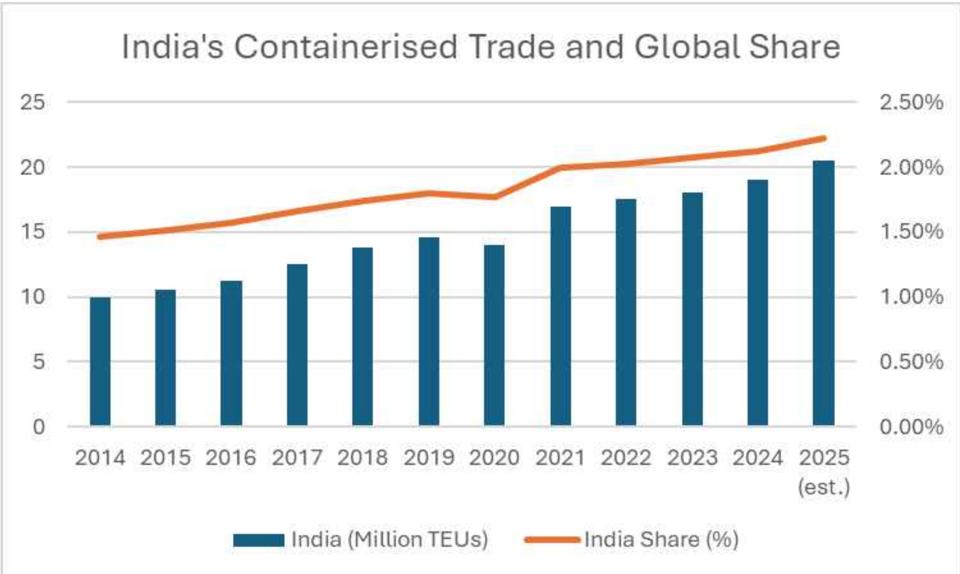
(% of Global Seaborne Trade)

Year	By Value	By Volume
2020	1.70	12.00
2021	2.10	12.50
2022	2.40	12.80
2023	2.40	12.90
2024	2.50	13.00
2025 (est.)	2.5-2.6	13.0-13.2

As seen in Table 5, India handles large volumes because of imports of bulk commodities (coal, iron ore, crude oil), exports of petroproducts and growing container trade. These are high-tonnage, low-value goods, which inflate volume share relative to value share. Hence, India is a large maritime trading nation but a marginal shipbuilding power, highlighting a structural asymmetry between usage and industrial capability. However, India's value share has been rising, and its volume share is stable.

For example, India's share in Global Containerised trade has been growing, and this is as shown in Figure 4 below:-

Figure 4. India's GDP Growth and Share of Container Trade



Note: Figures are rounded estimates based on data from theUNCTAD, Indian Ports Association, and theMinistry of Ports Shipping and Waterways India, harmonized for consistency. Author's Compilation.

34) Compiled from various UNCTAD Reports.

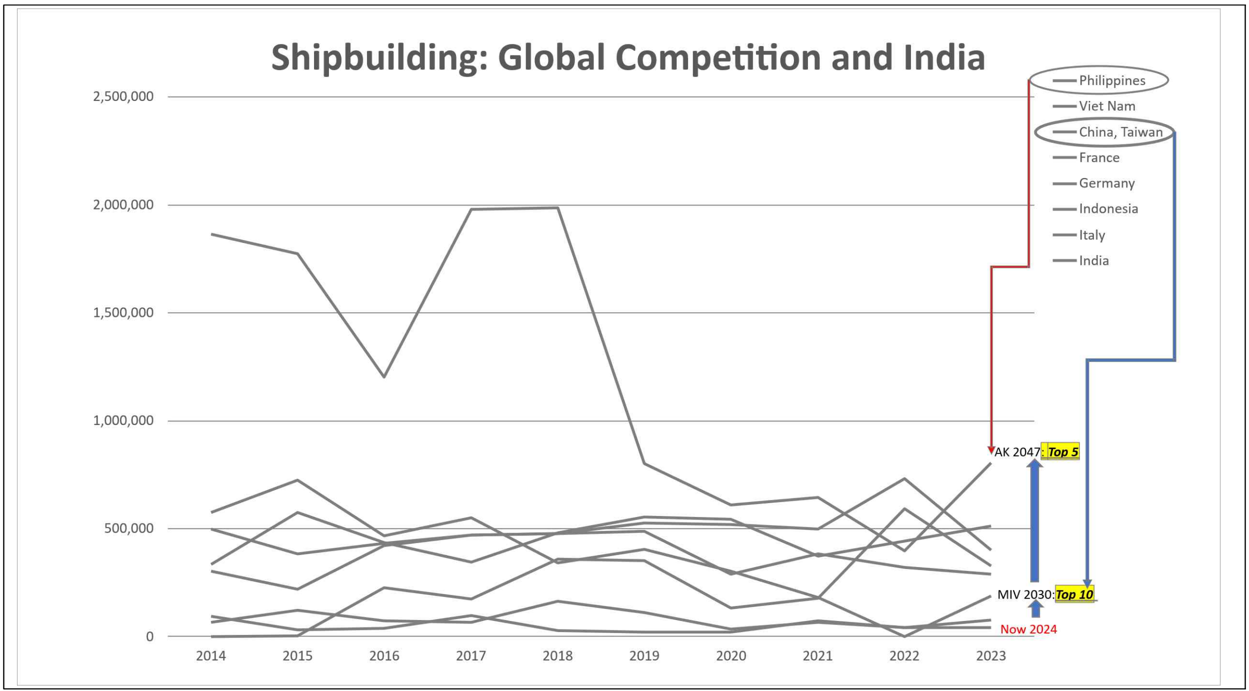
For India, which accounts for a significant share of global seaborne trade but possess a negligible shipbuilding footprint, investment in shipbuilding must, be viewed as a means of securing participation in future maritime value chains, mitigating external dependencies, and capturing higher value-added segments, rather than as a response to current levels of global fleet utilization or shipyard capacity.

3. India's Shipbuilding Industry

3.1 Overview

Despite possessing strong maritime credentials supported by a large domestic maritime trade base, and a well-established engineering workforce, India's share of global shipbuilding at 0.06 per cent and ship owning at 0.7 per cent remains negligible[35] as shown in Figure 5 below. Against this situation, the Maritime India Vision (MIV30) and the Maritime Amrit Kaal 2047 (MAKV47) aspiration requires India to be amongst the top 10 shipbuilding nations by 2030 and climb to top five by 2047.

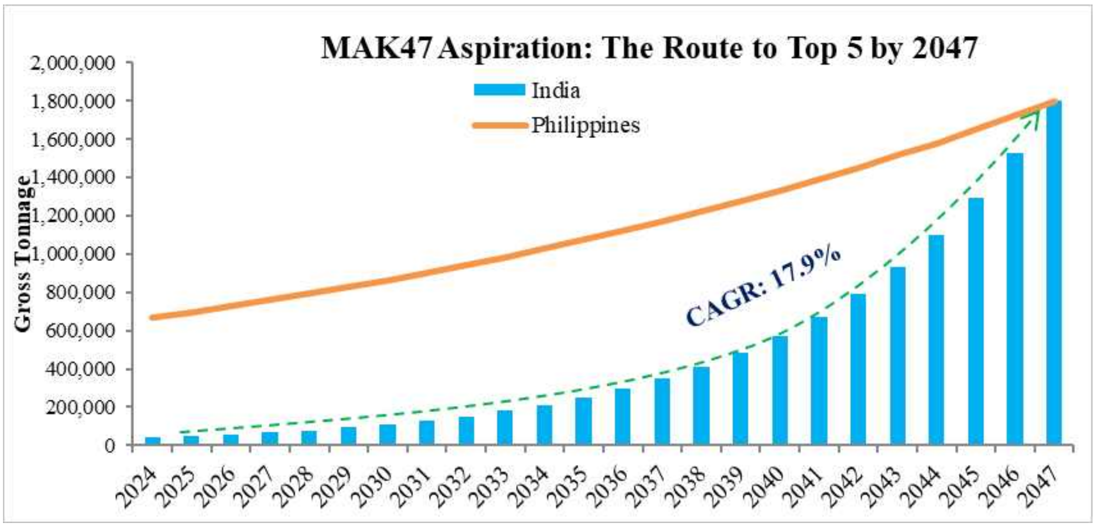
Figure 5. Major Shipbuilding Nations and Ranking Trends



35) “Review of Maritime Transport 2025, Table II.1 and Table II.2”.
(Source: https://unctad.org/system/files/official-document/rmt2025ch2_en.pdfAccessedon18March2026.)

The MAKV47 has set a target of reaching the top 5 ranking in shipbuilding, moving up from its current position as 16th top shipbuilding nation. Currently, the Philippines holds the 5th position in global shipbuilding, with an annual output of 668,207 GT. Assuming the Philippine s continues to grow at the global CAGR of 4.4 per cent,[36] India would need to annually deliver 1.8 million GT by 2047 to replace the Philippines as the 5th largest shipbuilder and still have a market share of about one per cent of global shipbuilding. The Figure 6 below depicts the minimum CAGR for the sector to realise these aspirations given that the current 'occupants' will also continue to grow at the nominal global average growth rate.

Figure 6. CAGR required to meet MAKV47 Aspirations



In FY 2023-24, Indian-owned vessels carried only about 4.11 per cent of the country's overs eas trade[37] , while India's share in global shipbuilding is 0.06 per cent[38] , underscoring a pronounced structural disconnect between its scale as a maritime trading nation and its limite d participation in shipbuilding capacity. Further, the declining share of cargo carried on India n owned merchant ships as a share of the global fleet for the period since 2000-24, as depicte d in Table 6[39] offers a potent argument for the growth of the Indian Shipbuilding industry.

36) "Shipbuilding Market: Global Industry Analysis and Forecast (2025-2032);"The global shipbuilding market is expected to grow at 4.4 per cent; therefore, it is assumed Philippines market may also grow at this rate. Retrieved from: Maximize Market Research.
(Source: https://www.maximizemarketresearch.com/market-report/shipbuilding-market/148775/)
37) Annual Report 2023-24. Directorate General of Shipping India.
38) Review of Maritime Transport (2024). UNCTAD,
39) Various Reports of Review of Maritime Transport. UNCTAD.

Table 6. India's Share of Owned Vessels in Overseas Trade

Year / Period	Indian-Flag Share (%)	Trend Description
2000/01	31-32	Strong national fleet presence (pre-liberalisation legacy)
2005/06	20-22	Gradual decline begins; rising foreign competition
2010/11	12-14	Accelerated decline post-globalisation of shipping markets
2015/16	8-9	Structural erosion; stagnation in Indian fleet growth
2018/19	6-7	Continued decline despite policy attention
2020/21	5-6	COVID period; marginal stabilisation
2023/24	4.1	Official figure (Parliamentary data)
2024/25 (est.)	4-5	Flat; no structural recovery yet

In more details the ship type-based ownership is depicted in Table 7. This shows that by number of ships the Indian ownership is of higher percentage but by DWT it is much lower indicating that small ships largely comprise the Indian Fleet.

Table 7. Ownership share by Ship Type[40)]

Ship Type	DWT			Nos		
	INDIA	WORLD	India Share (%)	INDIA	WORLD	India Share (%)
General Cargo	1,578,226	818,153,600	0.193	159	12,464	1.276
Bulk Carrier	5,520,137	97,374,342,800	0.006	128	13,578	0.943
Oil Tanker	11,291,183	65,134,828,700	0.017	159	20,733	0.767
Cellular Container	833,141	30,531,313,400	0.003	37	6,129	0.604

The comparative production data in Table 8 show India's trajectory in gross tonnage output alongside peer nations. India's output of approximately 40,459 gross tonnes in 2023 pales against the Philippines' 805,938 gross tonnes, Vietnam's 513,080 gross tonnes, Italy's 402,164 gross tonnes, and Germany's 289,666 gross tonnes. India lags behind nations with smaller coastlines, smaller economies, and a far less strategic imperative to be a maritime power.

40) Various Reports of Maritime Transport. UNCTAD

Table 8. Shipbuilding Output of Select Comparable Countries[41)]

Country	2017	2019	2021	2023	2025 (est.)
Philippines	1,980,322	802,366	643,456	805,938	850,000 - 950,000
Vietnam	344,818	555,081	372,492	513,080	550,000 - 650,000
Italy	469,558	527,024	498,889	402,164	400,000 - 450,000
Germany	469,633	487,267	382,735	289,666	280,000 - 320,000
Indonesia	65,820	110,028	64,473	75,979	80,000 - 100,000
India	96,658	20,717	72,137	40,459	50,000 - 80,000

Note: Data for 2025 are indicative estimates derived from recent production trends and industry orderbooks, as consolidated country-level output data for recent years are not uniformly published in a single source.

The volatility in India's output, swinging from 96,658 GT in 2017 to just 20,717 GT in 2019 and recovering partially to 40,459 GT in 2023, betrays the structural weakness of its shipbuilding industrial base as an outcome of insufficient assured demand, inadequate financial architecture, weak supply chain depth, and the absence of a coherent long-term national strategy.

3.2 Shipbuilding Infrastructure: Dry Docks, Cranes and Capacity

The Indian shipbuilding industry has historically evolved along dual tracks comprising a state-led defence-oriented ecosystem and a private-sector commercial shipbuilding segment. This bifurcation has shaped both the capabilities and constraints of the sector. Over the period 2021-2025, a renewed policy emphasis on maritime self-reliance and defence indigenisation has led to a significant expansion in order books, particularly among public sector shipyards.

At the same time, India's global shipbuilding footprint remains modest when compared to East Asian leaders such as Korea and China. The sector's development is therefore best understood not only through capacity expansion but also through its ability or inability to translate infrastructure into sustained output and exports.

Over the last few years, India's public shipyards have expanded beyond defence projects to take on more merchant and offshore vessel orders. Private shipyards have moved from mercantile to warship building also. Indian shipyards are clearly segmented into large-scale public facilities and agile private yards, together forming a balanced commercial shipbuilding ecosystem. Public shipyards contribute scale, established infrastructure, and higher aggregate capacity, while private yards drive efficiency, modular construction, and niche vessel specialisation.

41) Ibid.

Hence, this osmosis is introducing new capabilities and with policy support, better infrastructure, and technology partnerships, they are increasingly attracting domestic and global clients. Overall, the sector is steadily modernising with increasing focus on productivity, concurrent builds, and commercial competitiveness.

India's shipbuilding infrastructure comprises a network of 42 dry docks, distributed across public and private shipyards, along with numerous slipways, outfitting berths, and fabrication facilities.[42] However, only a limited number of these facilities are capable of constructing large or complex vessels. Among public sector shipyards, Cochin Shipyard Ltd (CSL) operates the largest dry dock in the country, with a capacity exceeding 110,000 DWT, enabling the construction of capital ships, including aircraft carriers[43]. Mazagon Dock Shipbuilders Ltd (MDL) maintains specialised submarine assembly lines and heavy-lift Goliath cranes for modular warship construction[44]. Garden Reach Shipbuilders & Engineers (GRSE) operates multiple building berths that allow parallel construction of frigates and corvettes[45] , while Hindustan Shipyard Ltd[46] (HSL) and Goa Shipyard Ltd (GSL) provide medium-scale docks for smaller warships and commercial ship repair infrastructure[47]. A summary of the latent capabilities of Public Sector Shipyards is shown in Table 9 below.

Table 9. Latent Capabilities of Public Sector Shipyards

Shipyard	Key Infrastructure	Dry Dock / Capacity	Order Book (est) (2024-25, Cr)[48]	Deliveries (2021-2025)	Specialisation
Mazagon Dock (MDL)[49]	Modular yards, submarine assembly, Goliath cranes	Medium dry docks; submarine facilities	34,000	4-6 major platforms (incl. submarines, destroyers)	Submarines, destroyers, frigates
Cochin Shipyard (CSL)[50]	Large dry dock, ship repair complex	110,000 DWT capacity	21,000	10-15 vessels (incl. carrier completion, tugs, exports)	Aircraft carriers, tankers, tugs, container vessels

42) Government of India, Ministry of Ports, Shipping and Waterways, Transport Research Wing, Statistics of India's Ship Building and Ship Repairing Industry: 2024-25 (New Delhi: Ministry of Ports, Shipping and Waterways, 2026). Accessed12 May, 2026, (Source:https://shipmin.gov.in/sites/default/files/Statistics%20of%20Indias%20Ship%20Building%20and%20Ship%20repairing%20Industry%202024-25.pdf.)

43) Cochin Shipyard Limited.
(Source: https://cochinshipyard.in/.Accessedon16April2026.)

44) Mazagon Dock Shipbuilders Ltd.
(Source: https://mazagondock.in/)

45) Garden Reach Shipbuilders & Engineers Limited.
(Source: https://www.grse.in/Accessedon16April2026.)

46) Hindustan Shipyard Limited.
(Source: https://hslvizag.in/Accessedon16April2026.)

47) Goa Shipyard Limited.
(Source: https://goashipyard.in/Accessedon16April2026.)

GRSE[51]	Multiple building berths, modular construction	Medium capacity	25,000	20+ vessels; 8 delivered in FY26	Frigates, corvettes, patrol vessels
Goa Shipyard[52]	Slipways, outfitting jetties	Small-medium	15,000	10-15 vessels	OPVs, fast patrol vessels
Hindustan Shipyard[53]	Dry dock, repair yard	80,000 DWT	10,000	5-10 vessels	Fleet support ships, submarines (refit)

In contrast, the private sector is characterised by larger but underutilised facilities. Swan Defence and Heavy Industries [54] (SDHI), possesses India's largest dry dock and can theoretically build or repair vessels up to 400,000 DWT. Similarly, Larsen & Toubro's Kattupalli yard[55] incorporates a modern shiplift system, alongside modular fabrication facilities comparable to international standards. A summary of the leading Private sector Shipyards[56] is shown in Table 10.

Table 10. Snapshot of Major Private Sector Shipyards

Shipyard	Key Infrastructure	Dry Dock / Capacity	Order Book (INR Cr, est.)	New Build Deliveries (2021-2025)	Product Profile
L&T Kattupalli[57]	Modular yard, shiplift, multiple berths	20,000T shiplift; large integrated yard	Limited / project-based	Low (modular + defence fabrication)	Offshore, defence modules, specialised vessels
Swan Defence and Heavy Industries	India's largest dry dock, 600 T Goliath crane	662m dock; up to 400,000 DWT	Rebuilding shipbuilding pipeline	Minimal recent deliveries (revival phase)	Large commercial ships, tankers, naval platforms

48) Authors estimate. Compiled from various sources and newspaper reports, Press release etc.
49) Mazagon Dock Shipbuilders Limited. (2025). Annual Report 2024-25: Strengthening National Security through Indigenous Shipbuilding. Mumbai: Ministry of Defence, Government of India. Retrieved from (Source: https://mazagondock.in/English/pages/Annual-reportAccessedon16April2026.)
50) Ministry of Ports, Shipping and Waterways. (2024). Statistics of India's Ship Building and Ship Repairing Industry 2023-24. New Delhi: Government of India. Retrieved from (Source: https://shipmin.gov.inAccessedon16thApril)
51) Garden Reach Shipbuilders & Engineers Ltd. (2026). Annual Business Update FY 2025-26: Achieving Record Turnover and Operational Excellence. Kolkata: Ministry of Defence, Government of India. Retrieved from (Source: https://grse.in/investorsAccessedon16April2026.)
52) Goa Shipyard Limited. (2026). Annual Report 2025-26: Scaling Excellence in Indigenous Shipbuilding. Vasco-da-Gama: Ministry of Defence, Government of India. Retrieved from (Source:https://goashipyard.in/objective/annual-reportsAccessedon16April2026.)
53) Ministry of Ports, Shipping and Waterways. (2026). Annual Report 2025-26: Strengthening Maritime Infrastructure. New Delhi: Government of India. Retrieved from (Source: https://shipmin.gov.in/sites/default/files/Annual%20Report%202025-26.pdfAccessedon16April2026.)
54) Swan Defence and Heavy Industries Limited (Pipavav). Retrieved from (Source: https://www.swan.co.in/business-category/shipbuilding-heavy-engineering/Accessedon16April2026.)
55) L&T Shipbuilding (Kattupalli). Retrieved from (Source: https://www.lntshipbuilding.com/Accessedon16Apr2026.)
56) See Note 49.

(Pipavav)[58]			(3,000-5,000+ emerging orders)		
Bharati Shipyard[59]	Multiple coastal facilities	Small to medium dry docks	Low	Limited / small vessel output	OSVs, tugs, barges
Chowgule Shipyard[60]	Slipways, fabrication shops, outfitting berths	Small dry docks / slipways	Low-moderate (export-linked)	Numerous small & mid-sized vessels	Mini bulk carriers, tugs, coastal vessels
Shoft Shipyard[61]	Compact yard, modular fabrication	Small	Low but steady	Series production of small vessels	Tugs, pilot boats, dredgers
Yeoman Marine Shipyard[62]	Slipways, repair + build facilities	Small	Low	Limited but consistent niche deliveries	Harbour craft, small cargo vessels, inland/coastal ships

Despite this infrastructure, capacity utilisation across the private sector remains low, reflecting the absence of sustained commercial order flows or lack of competitive costs, quality and technology that global and domestic customers now demand.

3.3 Technological Capabilities and Specialisation

A defining feature of India's shipbuilding ecosystem is the concentration of high-end capabilities within the public sector. MDL has established itself as the country's premier builder of submarines and destroyers, including conventional submarines under licensed production arrangements and indigenous warship classes. CSL has demonstrated the capability to construct aircraft carriers, placing it in a select global group of shipyards with such expertise. GRSE specialises in frigates, corvettes, and survey vessels, while GSL focuses on offshore patrol vessels (OPVs) and fast patrol craft. Public sector shipyards have also begun to diversify into comme

57) Pandey, K. (2025, July 24). "Top 10 shipbuilding companies in India ranked by capacity, orderbook and defence programs (2026)". Maritime Gateway.
(Source:https://www.maritimegateway.com/top-10-shipbuilding-companies-in-india-powering-the-nations-maritime-might/, Accessed on 16 Apr 2026.)
58) Ibid
59) Ibid
60) Ibid
61) Ibid
62) Yeoman Marine Services Pvt. Ltd. (2026). Corporate Overview: Excellence in Shipbuilding and Turnkey Refits. Navi Mumbai: YMSPL Media Cell. Retrieved from
(Source: https://yeomanmarine.com/overview)
Infomerics Ratings. (2025). Credit Rating Report: Yeoman Marine Services Private Limited. Mumbai: Infomerics Valuation and Rating Pvt. Ltd.
(Source: https://www.infomerics.com/pressrelease/yeoman-marine-services-private-limitedAccessedon16thApril)

rcial segments. CSL, for instance, has secured orders for LNG-powered feeder container vessels and harbour tugs, indicating a gradual expansion beyond defence. Private shipyards, on the other hand, have traditionally excelled in commercial and offshore segments, including bulk carriers, offshore supply vessels (OSVs), dredgers, and port craft. Yards such as Shoft and Chowgule have delivered numerous small and medium vessels, particularly for coastal and port operations. Larsen & Toubro has developed niche expertise in offshore platforms and defence-related modular hull fabrication, while also deliver complex equipment, weapons and systems for naval programmes.

3.4 Order Books and Delivery Trends (2021-2025)

The most notable development in Indian shipbuilding, in recent times, is the sharp expansion in order books, driven largely by defence procurement. In aggregate, more than 51 large vessels (Navy) are currently under construction across Indian shipyards, underscoring a robust pipeline.[63] Also, delivery performance has improved, though delivery timelines remain longer than global benchmarks, indicating persistent inefficiencies in project execution. A summary of the order books of select shipyards is shown Table 11.

Table 11. Order Books and Delivery Trends of Recent Origin Orders

Shipyard	Vessel Type & Numbers	Value	Customer	Delivery Period
Swan Defence and Heavy Industries[64]	4 × 92,500 DWT ammonia dual-fuel bulk carriers	INR1,500-3,000 crore (Category IV)	Energy ONE (global shipping investor)	First delivery Oct 2029; thereafter every 4 months
	6 × 18,000 DWT IMO II chemical tankers (+ option 6)	US$227 million (~INR1,900 crore)	Rederiet Stenersen AS (Norway)	First delivery 33 months; series deliveries thereafter
	1 × Naval training ship (~104m)	Not disclosed (defence export)	Royal Navy of Oman	18 months delivery
	5 × Offshore Support Vessels (OSVs) (completion order)	Not disclosed	San Maritime (India/offshore sector, export-linked ops)	Ongoing (mid-2020s)
Garden Reach Shipbuilders & Engineers[65]	4 + 4 (option) × 7,500 DWT Multi-Purpose Vessels (MPVs)	US$54M (initial 4); US$108M total with options	Carsten Rehder / German shipowner	Deliveries from 2025 onward (phased)

63) "Sailing Towards Self-Reliance: The Indian Navy's Atmanirbhar Bharat Journey" PIB. (Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2198298&reg=3&lang=2)

	Ocean Research Vessel (1)	Not disclosed	National Centre for Polar & Ocean Research (global research collaboration context)	Mid-late 2020s
	Acoustic Research Ship (1)	Not disclosed	DRDO / Naval Physical & Oceanographic Lab	Mid-late 2020s
Chowgule Shipyard[66]	Series of mini bulk carriers (3,000-8,000 DWT class; multiple vessels)	INR300-800+ crore (aggregate, est.)	European coastal operators (incl. Germany/Netherlands clients)	Phased deliveries 2024-2028
	Harbour tugs (10-20 units across contracts)	INR200-400 crore (aggregate, est.)	Middle East, Africa port authorities	Serial deliveries (2023-2026)
Shoft Shipyard[67]	Harbour tugs & pilot boats (15-25 vessels across orders)	INR150-300 crore (aggregate, est.)	UAE, Africa, SE Asia port operators	Continuous batch deliveries (2023-2026)
	Dredgers / workboats (small series)	INR50-150 crore	Regional marine contractors	Ongoing (mid-2020s)

Table 11 highlights a clear stratification emerging within India's shipbuilding export ecosystem, but it must be interpreted with some important caveats. For large and visible players such as SDHI and GRSE, order-level data is typically contract-specific and publicly disclosed, allowing for relatively precise valuation and delivery timelines. In contrast, shipyards such as Chowgule Shipyard and Shoft Shipyard operate on a different business model characterised by framework agreements, repeat international clients, and series production of smaller vessels such as tugs, mini bulk carriers, and workboats. As a result, their order values are better understood as aggregated estimates rather than single headline contracts. This distinction is analytically important, because it reveals that India already possesses a functioning export base at the lower end of the value chain, even as it begins to scale upwards. Taken together, these shipyards illustrate a full-spectrum ecosystem in formation where Shoft and Chowgule anchor the small-vessel segment with steady, repeat exports, GRSE is moving into mid-sized cargo vessels and specialised platforms, and SDHI represents a decisive push into high-value, technologically advanced green ships. This layering of capability from small craft to complex commercial vessels is critical, as it mirrors the historical trajectory followed by Korea in building global

64) "Swan Defence & Heavy Industries bag chemical tanker deal worth US$227 million". The Economic Times. Retrieved from (Source: https://m.economictimes.com/industry/transportation/shipping-/-transport/swan-defence-heavy-industries-bag-chemical-tanker-deal-worth-227-million/articleshow/127231476.cms, Accessedon16April2026.)

65) "Garden Reach secures order for four more hybrid multipurpose vessels". Shipping Tribune. Retrieved from (Source:https://www.shippingtribune.com/news/shipping/Garden+Reach+secures+order+for+four+more+hybrid+multipurpose+vesselsAccessedon16April2026.)

66) Current Projects and Vessel Portfolio. Chowgule and Company Pvt. Ltd. (Shipbuilding Division). Retrieved from (Source:https://chowgulesbd.com/shipbuilding/Accessedon18April2026.)

67) Commercial and Defence Vessel Deliveries. Shoft Shipyard Pvt. Ltd. Retrieved from (Source: https://shoftshipyard.com/commercialAccessedon18April2026.)

competitiveness, where depth across segments preceded scale and technological leadership.

India's export trajectory in shipbuilding between 2026 and 2035 is likely to evolve in two distinct phases, beginning with a steady build-up in relatively standardised vessel categories before transitioning into higher-value, technology-intensive segments. In the near term (2026-2030), exports will be anchored by multipurpose vessels delivered by GRSE European buyers, chemical tankers under construction at SDHI for Norwegian operators, and small container ships being built by CSL for global liners such as CMA CGM[68].

3.5 New Shipyards

Recent developments indicate that India's shipbuilding expansion is no longer driven solely by central policy but is increasingly anchored in state-level industrial strategies across major coastal regions. Tamil Nadu has emerged as the most proactive, positioning Thoothukudi as a global shipbuilding hub through targeted incentives, land aggregation, and port-led industri alisation, which has attracted anchor interest from HD Hyundai. Andhra Pradesh is similarly advancing a port-led manufacturing strategy, with Dugarajapatnam and other coastal nodes being positioned for greenfield shipyard investments and Japanese collaboration. Gujarat cont inues to leverage its existing maritime ecosystem particularly around Pipavav and Dahej throu gh policy support for ship recycling, repair, and newbuilding clusters. Meanwhile, Maharashtr a is focusing on smaller shipbuilding, repair, and coastal vessel ecosystems linked to Sagarmal a and inland waterways. Taken together, these state-led initiatives signal a shift toward cluster -based shipbuilding development, aligning infrastructure, policy incentives, and global partne rships in a geographically distributed but strategically coordinated manner. The new projects in the pipeline are mentioned in Table 12.

Table 12. New Shipyard Partnerships Pipeline

Foreign Shipyard	Indian Entity / Partner	Project Brief	Investment	Timeline
HD Hyundai[69]	Government of Tamil Nadu	Greenfield mega shipyard at Thoothukudi; large-scale commercial shipbuilding hub	US$ 4 billion (INR 33,000 crore)	Planning/MoU signed Dec 2025; execution phase under discussion; long-term (late 2020s-2030s)
HD Korea Shipbuilding & Offshore Engineering[70]	Cochin Shipyard Limited	Strategic MoU for collaboration on large shipbuilding, greenfield yards, and technology transfer;	INR 3,700 crore (block facility); broader INR 15,000 crore ecosystem	MoU signed Sept 2025; phased development through late 2020s

68) 'Swan Defence & Heavy Industries bags chemical tanker deal worth USUS$ 227 million". 22nd October 2024. Retrieved from (Source:https://www.ibef.org/news/swan-defence-heavy-industries-bag-chemical-tanker-deal-worth-us-227-million, Accessed on 16 April 2026.)

		includes block fabrication facility		
HD Hyundai[71]	BEML	Collaboration on port cranes and shipyard equipment (Goliath cranes, heavy infrastructure)	Not disclosed	MoU signed 2025; near-term
HD Hyundai Heavy Industries[72]	Cochin Shipyard Limited + CMA CGM	Technical collaboration for LNG-powered container vessel construction	Not disclosed	Deliveries 2029-2031
Imabari Shipbuilding[73]	Government of Andhra Pradesh	Proposed greenfield shipyard investment; part of India-Japan maritime cooperation	Not disclosed (exploratory)	Talks ongoing (2025-2026)
Mitsui O.S.K. Lines[74]	Indian shipyards (multiple)	Exploring tanker construction via partnerships; indirect ecosystem participation	Not disclosed	Exploratory; mid-late 2020s
To be finalized (Likely global majors from Korea, Japan, or China)[75]	Adani Group (Adani Ports and Special Economic Zone - APSEZ)	Establishment of a massive commercial shipbuilding and repair facility at Mundra Port; focus on green/eco-friendly vessels to meet global decarbonization demand.	INR45,000 crore (Part of total port expansion/capital expenditure)	Environmental/CRZ clearances secured May 2024; aligned with Maritime India Vision 2030 for operational rollout.
HD Korea Shipbuilding & Offshore Engineering[76]	Multi-state ecosystem (TN, Gujarat, AP)	Participation in shipbuilding cluster development including greenfield planning	Part of INR70,000+ crore maritime push	Ongoing (2025 onward)
(Multi-partner / Government-led)	Government of Andhra Pradesh (Dugarajapatnam)	Proposed greenfield port-cum-shipbuilding and industrial cluster; potential site for large shipyard with foreign collaboration (Japan/Korea interest)	INR29,253-INR29,662 crore (indicative, multi-phase including port + industrial zone)	Long-term (late 2020s-2030s; planning and clearances stage)

69) "HD Hyundai's ambitious US$4 billion shipyard project in Tamil Nadu". 10th February 2026. Retrieved from (Source:https://infra.economictimes.indiatimes.com/news/ports-shipping/hd-hyundais-ambitious-4-billion-shipyard-project-in-tamil-nadu/129586239Accessedon16April2026.)
70) Shri Sarbananda Sonowal flags off maiden voyage of India's first indigenously developed Multi-Purpose Vessel. 21st February 2026. Retrieved from (Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2170036&reg=3&lang=2Accessedon18April2026.)
71) "BEML signs MoU with Indian Navy for development of advanced marine propulsion systems". 5th December 2025. Retrieved from (Source: https://www.bemlindia.in/wp-content/uploads/2025/12/pressrelease051225.pdfAccessedon18April2026.)
72) "Cochin Shipyard signs MoU with Adani Harbour Services for Green Tug Transition Programme (GTTP)". 20th March 2024. Retrieved from (Source: https://cochinshipyard.in/news/view/85Accessedon18April2026.)
73) "Japan's largest shipbuilder Imabari eyes opportunities in Andhra Pradesh". 15th February 2025. Retrieved from (Source:https://infra.economictimes.indiatimes.com/news/ports-shipping/japans-largest-shipbuilder-imabari-eyes-opportunities-in-andhra-pradesh/117954360Accessedon16April2026.)
74) "Mitsui O.S.K. Lines plans to place vessel orders with Indian shipyards in the future". 24th September 2025. Retrieved from (Source:https://infra.economictimes.indiatimes.com/news/ports-shipping/mitsui-o-s-k-lines-plans-to-place-vessel-orders-with-indian-shipyards-in-the-future/123667421Accessedon16April2026.)
75) Billionaire Gautam Adani now wants to build ships at India's largest port - Adani Group's Mundra. 9th July

3.6 Key Strategic Insights

India's shipbuilding landscape is, therefore, entering a decisive phase, shaped in large part by the emergence of HD Hyundai as the anchor foreign entrant. Unlike earlier, tentative colla borations, Hyundai's approach signals a full-spectrum industrial commitment combining a pr oposed US$4 billion greenfield shipyard with parallel technology and infrastructure partnershi ps involving CSL and BEML. This is not a single-project engagement but an ecosystem at play spanning design, fabrication, and heavy engineering. It reflects a broader structural shift unde rway in global shipbuilding that transits from "order outsourcing," where foreign yards merely supplied designs or executed contracts, to "capacity relocation," where production itself is being geographically diversified. India is increasingly being positioned as a destination for such relocation, offering a combination of cost advantages and strategic hedging against over dependence on China.

In contrast, Japanese participation remains more exploratory and cautious. Firms such as Imabari Shipbuilding are engaged primarilyat the level of state-led discussions, particularly in regions like Andhra Pradesh, with a focus on long-term ecosystem development rather than immediate capital deployment. Their interest spans greenfield shipyards, workforce developm ent, and research collaboration, but concrete investment commitments have yet to materialis e. This divergence underscores two distinct models of engagement. Korea adopts a faster, capi tal-intensive approach, and Japan adopts a slower, consortium-driven pathway. At the same time, a hybrid model is beginning to take shape, exemplified by emerging collaborations that combine European demand, Korean technological expertise, and Indian construction capabilit ies, pointing toward a triangular framework that could define India's future export shipbuildin g strategy.

Taken together, these trends signal a broader transformation: India is moving beyond its traditional identity as a domestically focused naval shipbuilding base toward becoming a pote ntial global manufacturing node, underpinned by foreign technology and capital. Therefore, as per presently available data, the shipyard capacity enhancements could be as presented below in Table 13. If such estimates fructify, then India is well on a robust pathway to meet the aspirational targets of MAVK47.

2024.
(Source:https://timesofindia.indiatimes.com/business/india-business/billionaire-gautam-adani-now-wants-to-build-ships-at-indias-largest-port-adani-groups-mundra/articleshow/111598454.cmsAccessedon16April2026.)

76) HD Hyundai Korea Shipbuilding & Offshore Engineering. 2026.
(Source: https://www.hd-ksoe.com/en/mainAccessedon16April2026.)

Table 13. Drivers for Capacity Growth

Phase	Drivers	Estimated Capacity (CGT/Year)
2025 baseline	Existing PSU and private cargoes	About 0.05-0.1 million CGT
2026-2030	Brownfield expansion combined with Korean/JV and assisted with governement push	Possibly 0.5-1.0 million CGT
2030-2035	Full greenfield yards (TN, Gujarat, AP) supported with export scale-up	Potentially 2-4 million CGT

3.7 Naval Shipbuilding

To accelerate the transition to be among the Top 5 shipbuilding nations, India could also adopt an innovative civil-military fusion initiative that deliberately integrates commercial and naval shipbuilding pathways. Under such a model, commercial vessels, particularly container ships, bulk carriers, and offshore platforms, would be designed from the outset with modular architecture, reserve space, and structural provisions enabling rapid conversion for auxiliary naval roles, logistics support, or even armed configurations if required. This approach finds precedent in developments in China, where reports indicate the construction of cargo and container vessels with latent capability for militarisation, including missile deployment and naval support functions. For India, a calibrated and transparent adaptation of this concept aligned with international norms could leverage its growing shipbuilding base, defence design expertise, and industrial supply chains to create a scalable, dual-use maritime capability. Such a strategy would not only strengthen national security but also enhance the commercial comp etitiveness of Indian shipyards by embedding advanced design, modularity, and systems integr ation into mainstream shipbuilding. Hence, India's shipbuilding growth over the next decade can very well be anchored by a robust warship-building pipeline that provides assured deman d, technological depth, and long-term industrial stability. The naval fleet modernisation plan is summarised below in Table 14.

Table 14. Naval Shipbuilding Projected Pipeline

Program	Numbers	Est Value (INR crore)	Key Features / Notes	Timeline
Landing Platform Docks (LPDs)[77]	4	20,000-25,000	Amphibious assault capability; likely foreign collaboration (Korea/Europe)	Late 2020s-early 2030s
Mine Countermeasure Vessels (MCMVs)[78]	12	30,000	Advanced sonar, mine-hunting systems; revived program	Late 2020s

Project 75(I) submarines	6	70,000	AIP submarines; strategic partnership (foreign OEM and Indian yard)	Late 2020s-mid 2030s
Project 17B (Follow-on Frigates)[79]	8 (planned)	50,000	Stealth frigates; continuation of P17A line	Late 2020 to early 2030s
Project 18 Next gen Destroyers[80]	6 (planned)	70,000-80,000	Next-gen destroyers; advanced sensors, directed energy potential	Early-mid 2030s
Next-Gen Corvettes NGC)[81]	8-10	30,000-40,000	Modular, multi-role combatants	Late 2020s to early 2030s
Fleet Support Ships (FSS)[82]	4	20,000	Replenishment vessels; being built with foreign collaboration	Late 2020s
Survey Vessels (Large & Medium)[83]	8-10 vessels	5,000-8,000	Hydrographic and oceanographic roles	Ongoing-late 2020s
Offshore Patrol Vessels (OPVs) (Navy + Coast Guard)	10-15 vessels	10,000-15,000	Patrol, EEZ security; export potential	Ongoing-early 2030s
Fast Patrol Vessels / Interceptors	30+ vessels (series)	8,000-12,000	Coastal security; high-volume production	Continuous (2025-2035)
Indigenous Aircraft Carrier (IAC-2)	1 (planned)	50,000-70,000	Potential CATOBAR/advanced carrier; under consideration	Early-mid 2030s
Landing Craft Utility (LCU) & Amphibious Craft	Series (10-20)	3,000-5,000	Island and coastal logistics	Ongoing
Autonomous / Unmanned Surface Vessels (USVs)	Multiple (emerging)	Not disclosed	AI-enabled, future warfare systems	Late 2020s onward

77) “Defence Acquisition Council grants AoN for amphibious assault vessels and naval modernization.” 27th October 2025.
(Source:https://www.newsonair.gov.in/ministry-of-defence-fully-utilises-%E2%82%B91-86-lakh-crore-capital-outlay-for-fy-2025-26/Accessedon16April2026.)
78) “Delivery of 'Malwan', the second ASW Shallow Water Craft with Mine Warfare capabilities.” PIB release, 31st March 2026.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2247339Accessedon16April2026.)
79) “Ministry of Defence clears ₹70,000 crore mega-project for stealth frigates.” 15 July 2025.
(Source: https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1989502Accessedon16April2026.)
80) “Indian Navy pushes Maritime Capability Perspective Plan target to 2032.” Economics Time, 2 December 2025.
(Source:https://m.economictimes.com/news/defence/indian-navy-pushes-maritime-capability-perspective-plan-target-to-2032/articleshow/125723041.cmsAccessedon16April2026.)
81) “Rs 40,000 Cr Navy Boost: India set to build 8 New Generation Corvettes”. 23 March 2026.
(Source:https://www.timesnownews.com/india/rs-40000-cr-navy-boost-india-set-to-build-8-new-generation-corvettes-article-108723451Accessedon16April2026.)
82) “Keel laying of third Fleet Support Ship for Indian Navy at Kattupalli”. 9 July 2025.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2138104Accessedon16April2026.)
83) “Fourth Survey Vessel (Large) 'Sanshodhak' delivered to Indian Navy at GRSE Kolkata.” 31 March 2026.
(Source: https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2247145Accessedon16April2026.)

Collectively, these programmes are expected to provide baseline capacity utilisation for Indi an shipyards over the next 10-15 years, while enabling absorption of advanced technologies in propulsion, combat systems, and complex platform integration, with significant spillover effects into civilian shipbuilding. This sustained naval demand underpins a compelling case for adopting civil-military fusion as India's central shipbuilding strategy. Unlike China, which built scale first and moved up the value chain, or Korea, which specialised early in high-value segments, India sits at a unique intersection. It already possesses advanced naval design capab ility, a mature defence industrial base, and a growing ecosystem of indigenous systems, missile s, sensors, combat management systems, and propulsion integration expertise, but lacks scale. The logical pathway, therefore, is not to replicate East Asia's trajectory, but to leverage defenc e shipbuilding as the anchor for commercial expansion.

Warship building inherently develops the most complex competencies in ship design, stealth shaping, modular construction, integrated electrical systems, survivability engineering, and sys tem-of-systems integration. These capabilities are directly transferable to next-generation co mmercial vessels, particularly in the emerging domains of green propulsion (LNG, methanol, ammonia), digital ships, and autonomous navigation, including green and digitally enabled shi ps. In effect, every destroyer or submarine built domestically is not just a military asset it is a technology incubator for the commercial fleet of the future

The opportunity lies in systematically linking this high-end capability with India's broader industrial base. The same supply chains that produce naval-grade steel, propulsion systems, electronics, and complex fabrication modules can be scaled and standardised for merchant shipbuilding. Small and medium enterprises that today feed into India's defence programmes can evolve into globally competitive suppliers for commercial vessels. This is precisely how Korea built its dominance through deep integration of shipyards with national industrial ecosy stems. In effect, civil-military fusion offers a pathway for India not merely to expand capacity but to emerge as a competitive, technology-enabled third pole in global shipbuilding by 2035.

Simultaneously, the entry of foreign shipbuilders, particularly from Korea, provides a catalyt ic layer. Their strengths in process efficiency, modular construction, and global marketing can complement India's strengths in design, engineering, and cost competitiveness. If effectively harnessed, this could create a hybrid and integrated model that combines Korean efficiency, India's cost base and indigenous systems integration.

The strategic implication is profound. India does not need to outcompete China in scale or Korea in technology in isolation. It can instead position itself as a third pole in global shipbuilding, a country capable of delivering cost-effective, technologically advanced, and inc reasingly green vessels, backed by a robust domestic defence demand that de-risks capacity creation.

In this framework, civil-military fusion is not a theoretical construct. It is a highly viable pathway to scale. Naval orders provide the design capability, demand certainty, technological depth, and financing stability required to build capacity. Commercial shipbuilding provides the volumes needed to achieve efficiency and global relevance. Together, they can transform India from a marginal player into a structurally important node in global shipbuilding supply chains by 2035.

3.8 Governmental Initiatives Advancing Indian Shipbuilding

To transition India into a shipbuilding powerhouse, the Central and State governments have implemented targeted policy interventions designed to dismantle systemic barriers, specificall y addressing high financing costs, stagnant domestic demand, and existing technological gaps. By fostering a more competitive ecosystem through these fiscal and regulatory reforms, the government aims to build India's position as a leader in this strategic industry.

Central Government Initiatives. The Ministry of Ports, Shipping, and Waterways (MoPSW) is the nodal agency for the shipbuilding sector. Central initiatives are primarily focused on financial incentives, infrastructure modernisation, and long-term strategic roadmaps. One of the most significant schemes is the Shipbuilding Financial Assistance Policy (SBFAP) , launche d in 2016 and recently extended till 31st March 2036. It provides financial assistance to Indian shipyards for specialised vessels and standard ships, helping them bridge the cost gap between domestic and international production. Furthermore, the Maritime India MIV 2030 and MAKV 2047 have set ambitious targets across various maritime sectors, including placing India amon g the top five shipbuilding nations globally by 2047. In September 2025, the government appr oved a landmark INR69,725 crore package that introduced the Shipbuilding Development Sch eme (SBDS)[84] and the Maritime Development Fund (MDF) to provide credit risk coverage and long-term low-cost financing. The brief description of the initiatives of the Central Gover nment is placed in Table 15.

Table 15. Policy Initiatives of the Central Government

Initiative Name	Primary Objective	Key Features & 2026 Updates
Shipbuilding Financial Assistance Scheme (SBFAS)	Fiscal support for vessel construction.	Provides tiered assistance: 15% (contract 〈 INR 100 crore), 20% (contract 〉 INR 100 crore), and 25-30% for specialised Green/Hybrid vessels. Includes a Shipbreaking Credit Note mechanism for new builds[85].
Shipbuilding Development Scheme	Capacity & Infrastructure	With a budgetary outlay of INR 19,989 crore,

84) "Union Minister Shri Sarbananda Sonowal launches 'Maritime India Vision 2030' and 'Maritime Amrit Kaal Vision 2047,' PIB Release.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2170573&reg=3&lang=2Accessedon16thApril2026.)

(SBDS)	expansion.	focuses on long-term capacity and capability creation. The scheme provides for the development of greenfield shipbuilding clusters, expansion and modernisation of existing brownfield shipyards, and the establishment of an India Ship Technology Centre under the Indian Maritime University to support research, design, innovation and skills development. Focuses on Viability Gap Funding (VGF) for brownfield yard expansion and providing Credit Risk Coverage to Indian shipyards to lower the cost of borrowing[86].
Maritime Development Fund (MDF)	Access to capital.	A INR 25,000 crore corpus where the Govt. contributes 49%. It provides low-cost, long-term financing to increase India's global shipping tonnage from 2% to 5%[87].
Green Tug Transition Programme (GTTP)	Decarbonization of fleet.	Phase 1 (active till Dec 2027) mandates JNPA, DPA, VOCPA, and PPA to procure at least 2 Green Tugs each. Goal: 100% compliant fleet by 2047[88].
Right of First Refusal (RoFR)	Market Protection.	Revised hierarchy gives top priority to Indian Built, Indian Flagged, and Indian Owned vessels. Bidders must be within 20% of the L1 (lowest) quote to exercise RoFR[89].
MoPSW-KOICA Collaboration	Skill Development.	April 2026 agreement with Korea to establish the Shipbuilding Workforce Technology Centre. Focuses on workforce mapping and advanced marine engineering training[90].

State Government Initiatives. State governments, particularly coastal states, play a crucial role by providing land, utility subsidies, and localised policy support. States often align their policies with Central Government's project to develop specialised maritime clusters and ship-repair hubs. For instance, Gujarat has a dedicated "Ship Recycling Policy" and provides incentives for shipyard development under its industrial policies. Maharashtra has focused on developing inland water transport and green vessel technology. The brief snapshot of the state led schemes is mentioned below in Table 16 below.

85) “Shipbuilding Financial Assistance Policy: Contracts and Disbursements,” PIB Release.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2240069Accessedon16April2026.)

86) Ministry of Ports, Shipping and Waterways. Govt Notifies Guidelines for Shipbuilding Assistance, Development Schemes; ₹44,700 Crs Outlay.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209139Accessedon16thApril2026.)

87) PIB India. Union Budget 2025-26: Maritime Development Fund of Rs 25,000 Crore Proposed.
(Source: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2098382Accessedon16thApril2026.)

88) Ministry of Ports, Shipping and Waterways. Standard Operating Procedure: Green Tug Transition Program (GTTP).
(Source:https://shipmin.gov.in/en/content/standard-operating-procedure-green-tug-transition-programAccessedon16thApril2026.)

89) Directorate General of Shipping. Circulars on Chartering and Right of First Refusal (RoFR) Hierarchy.
(Source: https://www.dgshipping.gov.in/Content/DGSCirculars.aspx?branchid=10Accessedon16thApril2026.)

90) Directorate General of Shipping. Circulars on Chartering and Right of First Refusal (RoFR) Hierarchy.
(Source: https://www.dgshipping.gov.in/Content/DGSCirculars.aspx?branchid=10Accessedon16thApril2026.)

Table 16. State Government Initiatives

State/Authority	Specific Policy/Initiative	Focus Area & 2026 Status
Tamil Nadu	Tamil Nadu Shipbuilding Policy 2026	Focuses on a US$5 billion investment target by 2030; offers Production Linked Incentives (PLI) and equity support for major yards in the Thoothukudi-V.O.C. Port cluster[91].
Gujarat	GMB Integrated Maritime Policy	Provision of concessional 30-year land leases and common infrastructure for ancillary units; promotes the Alang-Sosiya region as a global hub for "Green Ship Recycling and Repair[92]."
Maharashtra	Maharashtra Maritime Board (MMB)	Developing specialised Ship Repair Clusters in Ratnagiri and providing fiscal incentives for inland ROPAX and electric ferry construction to boost coastal connectivity[93].
Andhra Pradesh	AP Maritime Board Master Plan	Establishing dedicated Shipbuilding Zones with 21-day single-window clearances for greenfield projects near Ramayapatnam and Bhavanapadu ports[94].
Odisha	Industrial Policy Resolution (IPR)	Grants "Thrust Sector" status to shipbuilding, providing 100% electricity duty exemption for 10 years and capital investment subsidies for mega-shipyard projects[95].

In line with global decarbonization goals, the Indian government has recently pivoted towar d "Green Shipping." Initiatives like the National Green Hydrogen Mission are being integrated into the maritime sector to promote the building of hydrogen and methanol-powered catamar ans and electric vessels. The Green Tug Transition Programme (GTTP) aims to convert existing tugs into green-energy-powered vessels, providing a direct demand boost to domestic shipyar ds specialized in sustainable technology. By combining financial incentives with structural ref orms like the RoFR for Indian-built ships in government tenders, the administration ensures a steady pipeline of work for domestic yards. This integrated approach between the Central and State governments is designed to reduce India's reliance on foreign-built shipsand positio n the nation as a leading exporter of maritime vessels.

Together, these initiatives aim to expand shipbuilding capacity, improve financial access, promote technological innovation, and strengthen domestic manufacturing. By integrating pol

91) Guidance Tamil Nadu. Tamil Nadu Shipbuilding and Repair Policy 2026: Driving Global Maritime Excellence. (Source: https://www.investingintamilnadu.com/sectors/shipbuilding-policy-2026Accessedon16thApril2026.)
92) Gujarat Maritime Board (GMB). Integrated Maritime Policy and Concession Guidelines for Shipbuilding Yards. (Source: https://gmbports.org/maritime-policyAccessedon16thApril2026.)
93) Maharashtra Maritime Board. Strategic Roadmap for Ship Repair Clusters and Coastal Shipping Incentives. (Source: https://mahammb.maharashtra.gov.in/shipbuilding-repairAccessedon16thApril2026.)
94) Andhra Pradesh Maritime Board. Master Plan for Port-Led Infrastructure and Shipbuilding Zones. (Source: https://apmaritime.ap.gov.in/master-planAccessedon16thApril2026.)
95) IPICOL Odisha. Industrial Policy Resolution (IPR): Special Incentives for the Maritime Thrust Sector. (Source: https://investodisha.gov.in/ipr-policy/shipbuildingAccessedon16thApril2026.)

icy incentives, infrastructure development, and regulatory reforms, India aspires to be among the top five global shipbuilding nations by 2047, in line with the broader objectives of MIV 2030 and MAKV47.

4. Overview Of The Korean Shipbuilding Industry

A Stimson Center report noted that, "Korea is a shipbuilding powerhouse, delivering advanced commercial and naval vessels on time and at cost, highlighting its industrial and innovative capacity[96]. The report stated, "In 2024, Korean shipyards delivered over 230 commercial vessels, accounting for nearly 21% of global output. Most new orders for Korean-made vessels are focused primarily on more sophisticated LNG carriers". There are 37 Shipyards in Korea of which 15 shipyards are classified as Major Shipyards. A summary of their profile is placed in Table 17[97].

Table 17. Major Shipyards of Korea

Shipyard	Yard Size (m2)	Annual Production		Main Products	Facilities
		Tonnes	Nos		
Dae Sun Shipbuilding & Engineering	206,834	73,000	15 ships	Containerships (1,000-2,500 TEU), Tankers, Bulk carriers, LPG carriers	Dry Dock: 109m × 19m × 7.7m; Building Berth: 122m × 25m; Floating Dock: 190.9m × 34.4m × 15.2m
Daehan Shipbuilding (DHSC)	278,000	250,000	12 ships	Capesize & Newcastlemax bulk carriers, MR & LRII product carriers, Aframax & Suezmax tankers, VLCC	Dry Dock: 460m × 72m × 10m; Floating Dock: 368m × 66m × 21.5m
Daewoo Shipbuilding & Marine Engineering (DSME)	4,900,000	1,000,000	75 ships	Tankers, Container carriers, LNG & LPG carriers, Submarines, Destroyers	Dry Dock 1: 530m × 131m × 14.5m; Dry Dock 2: 539m × 81m × 14.5m; Multiple Floating Docks
Hanjin Heavy Industries - SUBIC	2,739,000	500,000	22 ships	Containerships, Bulk carriers, Tankers, LNG/LPG carriers, Frigates	Dry Dock 5: 370m × 100m × 12.5m; Dry Dock 6: 550m × 135m × 13.5m
Hanjin Heavy Industries - YEONGDO	264,000	250,000	15 ships	Containerships, Bulk carriers, Tankers, LNG/LPG carriers	Dry Dock 2: 232.5m × 35m × 9m; Dry Dock 3 & 4: 301.8m × 50m × 11.5m
Hyundai Heavy Industries (HHI)	6,081,000	-	43 ships	Containerships, Drillships, LNG/LPG carriers, VLCCs, Tankers	10 Dry Docks; Largest: 672m × 92m × 13.4m

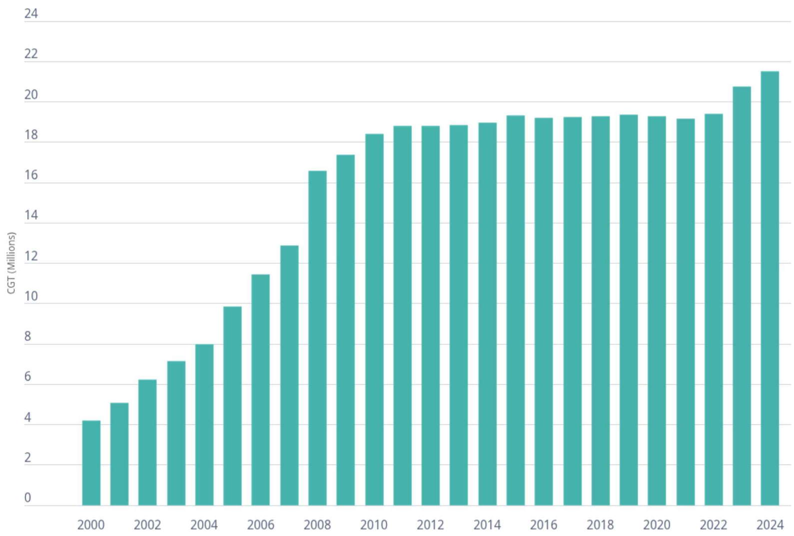
96) "Korean Shipbuilding Capacity", J James Kim, December 15, 2025. Stimson Center.
(Source: https://www.stimson.org/2025/south-korean-shipbuilding-capacity/ Accessed 08 May 2026.)
97) "SHIPYARDS IN KOREA" Korean Register.
(Source: https://www.krs.co.kr/eng/Content/CF_View.aspx?MRID=469 Accessed 12 May 2026.)

Hyundai Heavy Industries (GUNSAN)	2,098,000	-	12 ships	Containerships, Bulk carriers, VLCCs, Tankers	Dry Dock: 700m × 115m × 18m
Hyundai Mipo Dockyard (HMD)	716,955	700,000	80 ships	Product/Chemical tankers, Containerships, Bulk carriers, Gas carriers, Pure car & Truck carriers	4 Dry Docks; Largest: 380m × 65m
Hyundai Samho Heavy Industries (HSHI)	3,300,000	1,100,000	50 ships	VLCCs, Tankers, Containerships, Bulk carriers, Pure car carriers, LNG/LPG carriers	Dry Dock 1: 504m × 100m × 13m; Dry Dock 2: 594m × 104m × 13m
Hyundai-Vinashin Shipyard (HVS)	1,000,000	145,000	18 ships	Product/Chemical tankers, Bulk carriers	Dry Dock 1: 260m × 45m; Dry Dock 2: 380m × 65m
Samsung Heavy Industries (SHI)	4,000,000	1,300,000	70 ships	Crude oil tankers, Containerships, LNG carriers, Drillships, FPSO/FSOs	Dry Dock 1: 283m × 46m × 11m; Dry Dock 3: 640m × 97.5m × 12.5m
SPP Shipbuilding (GOSEONG)	100,000	380,000	16 ships	Bulk carriers (35 K), Product carriers, Containerships, Gas carriers	Floating Dock: 230m × 45m × 6m
SPP Shipbuilding (SACHEON)	310,000	580,000	24 ships	Product carriers, Bulk carriers, Container ships	Dry Dock 1: Length(m):310 x Breadth(m):86 x Depth(m):10
STX Offshore & Shipbuilding	1,000,000	1,100,000	50 ships	Tankers, Product/Chemical carriers, Containerships, Bulk carriers, LNG/LPG/LEG carriers	Dry Dock: Length(m):385 x Breadth(m):74 x Depth(m):11 DWT (max.):400,000 FloatingDock: Length(m):382xBreadth(m):66DWT(max.):200,000
Sungdong Shipbuilding (SSME)	1,944,000	1000000	44 ships	Containerships, Shuttle tankers, Product carriers, Crude oil tankers, Bulk carriers	Dry Dock 1: Length(m):460 x Breadth(m):135 x Depth(m):15.5 FloatingDock1:Length(m):320xBreadth(m):67xDepth(m):23DWT(max.):80,000 FloatingDock2:Length(m):230xBreadth(m):55xDepth(m):22.7DWT(max.):30,000

However, the Shipbuilding industry in Korea is highly consolidated, with three major groups HD Hyundai, Samsung Heavy Industries, and Hanwha Ocean, accounting for 90 per cent of the total ship production. These firms specialise in high-value segments, including LNG carriers, offshore platforms, and ultra-large container ships. As per the OECD Report, "According to Clarksons Research (Q4 2024), three Korean shipbuilders, HD Hyundai, Samsung Heavy Industries, and HanwhaOcean are ranked within the global top 10 based on CGT completions. HD Hyundai Heavy Industries recorded approximately 5.82 million CGT, leading among Korean builders and specialising in LNG carriers, large container ships, and ammonia/methanol-fuelled vessels. Samsung Heavy Industries followed with around 3.21 million CGT, maintaining its strength in FLNG, FPSO, and high-value offshore units. Hanwha Ocean, formerly DSME, joined the top 10 following its acquisition by Hanwha Group in 2022, with a focus on LNG carriers and naval vessels".[98)]

In 2000, Korea had a shipbuilding capacity of 3.9 million Compensated Gross Tonnes (CGT). This rose 18.4 million CGT by 2010 and is peaked at 21.5 million CGT[99)] as shown in Figure7.

Figure 7. Shipbuilding Capacity in CGT



Korean shipbuilders have increasingly specialised in high-value segments, such as LNG carri ers and Ultra Large Container Ships (ULCS), reflecting both shifts in global shipping demand and tightening environmental standards. The OECD report[100)] notes "Korean shipbuilders are at the forefront of orders for low emission vessels, notably LNG and LPG-fuelled ship. In parall el to promoting decarbonisation, the Korean shipbuilding industry is accelerating the integrati on of smart technologies including AI, robotics, and augmented reality (AR) to enhance produ ctivity and workforce efficiency amid persistent labour shortages". This focus on technological ly complex vessels has enabled Korea to sustain competitiveness despite rising costs and incre asing competition from China. Further, the integration of artificial intelligence, robotics, and advanced design tools has further enhanced productivity and quality. Table 18 below shows the capability of Korean Shipyards[101)].

98) "Peer Review of the Korean Shipbuilding Industry 2026" OECD Report.
(Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/04/peer-review-of-the-korean-shipbuilding-industry_a2993504/c19e0105-en.pdf)

99) Ibid. Peer Review Report

100) Ibid.

101) "Korean Shipbuilding Capacity" Stimson.
(Source: http://stimson.org/2025/south-korean-shipbuilding-capacity/)

Table 18. TechnicalCompetenceofKoreaShipyards

Parameter	LNG Carrier	Oil Tanker	Container	Bulker	Ro-Ro
Length (m)	186 ~ 345	205 ~ 415	172 ~ 400	150 ~ 360	150 ~ 250
Beam (m)	23.7 ~ 54	29 ~ 63	25 ~ 61	30 ~ 65	25 ~ 40
Draft (m)	8 ~ 12	16 ~ 35	10 ~ 16	10 ~ 25	8 ~ 10
Dead Weight Tonnage (DWT)	16,000 ~ 170,000	50,000 ~ 400,000	22,000 ~ 240,000	35,000 ~ 400,000	10,000 ~ 50,000
Cargo Capacity (cu m)	20,000 ~ 180,000	55,000 ~ 477,000	33,000 ~ 792,000	up to 200,000	up to 140,000
Average Cost Estimate (US$ mn)	175 - 265	50 - 128	45 - 220	47.8 - 126	60 - 140
Average Build Time (yuears)	0.75 ~ 2	0.75 ~ 1.25	0.5 ~ 1.5	1 ~ 1.5	1 ~ 1.25

The OECD Report notes, that Government plays a central and strategic role in supporting the shipbuilding and maritime sectors through regulatory frameworks, technological innovatio n, and financial instruments. Ministries such as MOTIR and MOF spearhead policies promotin g innovation, technology, and shipping competitiveness. Export credit agencies, KEXIM and K-Sure, facilitate export financing and mitigate market risks. The "K-Shipbuilding Strategy" and "Super Gap Vision 2040" outline long-term transformation goals, emphasising R&D in zer o-emission vessels, autonomous ships, and smart shipbuilding systems[102)]".

Recent corporate developments illustrate Korea's global expansion. A few strategic business initiatives that may impact the future course of the Global Shipbuilding industry include: -

a. Hanwha Ocean is expanding into the U.S. shipbuilding market[103)] and the naval market through mergers and acquisitions, notably its U.S. subsidiary, Philly Shipyard, in 2024 and mor e recently with M/s Leidos[104)] in April 2026.

b. HD Hyundai strengthened its global presence. In 2025, it signed a landmark agreement to construct a massive US$ 4 billion shipyard in Thoothukudi, Tamil Nadu, to create a new shipbuilding ecosystem. It also signed a Strategic MOU with Cochin Shipyard Limited (CSL) to share technology and target naval vessel projects[105)]. It also intends to construct LNG fuelle

102) "Peer Review of the Korean Shipbuilding Industry 2026" OECD Report. (Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/04/peer-review-of-the-korean-shipbuilding-industry_a2993504/c19e0105-en.pdf)

103) "Hanwha Ocean and Leidos to strengthen U.S. and allied naval shipbuilding", (Source:https://www.hanwha.com/newsroom/news/press-releases/hanwha-ocean-and-leidos-to-strengthen-us-and-allied-naval-shipbuilding.doAccessedon08May2026.)

104) Leidos brings advanced maritime technologies, including International Class combatants, U.S. Navy-validated maritime autonomy software, and autonomous vessels such as Sea Archer, Sea Specter, Sea Ranger, and Sea Hunter. Leidos Gibbs and Cox has designed more than 70% of U.S. Navy surface combatants since World War II and remains one of the Navy's most trusted design partners

105) "HD Hyundai to go solo on US$4 billion greenfield shipyard in Tamil Nadu", ET Infra, March 15, 2026.. (Source:https://infra.economictimes.indiatimes.com/news/ports-shipping/hd-hyundais-ambitious-4-billion-shipyar

d ships under a collaboration with U.S. shipyard and partnering with Saudi Aramco to complet e the largest shipyard[106]. More recently, it signed a MoU with American Bureau of Shipping (ABS), and Anduril Industries for the development of a framework for autonomous maritime systems and related certification[107].

c. Samsung Heavy Industries is continuing its shipbuilding expansion beyond Korea, forging a strategic pact with PetroVietnam[108] on shipbuildingthatwouldbuildSUEZMAXtankers,andwit hSDHIforshipbuildingandmarinebusinesscooperationinIndia.[109]

d. In addition, the Korean government is currently discussing further co-operation with the U.S. shipbuilding industry under the billion US$ range package, bearing in mind the 'Make America Shipbuilding Great Again'[110].

e. Korea's Ministry of Oceans and Fisheries (MOF) and Ministry of Trade, Industry and Energ y (MOTIE) have launched the Autonomous Ship AI Data Platform Project. KRISO (Korea Resear ch Institute of Ships & Ocean Engineering) will be responsible for the technical implementatio n of the project. KRISO will be tasked with collecting 100 types of data across eight core secto rs, including navigation, engine systems, remote control, and digital twins[111].

Innovation is a defining feature of the Korean industry. Significant investments have been made in alternative fuel technologies, autonomous ships, and digital manufacturing processes. Korean shipbuilders are at the forefront of orders for low-emission vessels, reflecting both regulatory pressures and market demand. As the OECD Report states, "the current alternative fuel orderbook for Korean shipyards as of 25 July 2025 contains 421 vessels, corresponding to a proportion of 62.6% of the total orderbook for Korea compared to 28.8% in the global orderbook (May 2025)[112]. This excludes alternative fuel-ready vessels such as LNG, Ammonia,

d-project-in-tamil-nadu/129586239)

106) HD Hyundai jointly with Aramco established the International Maritime Industries (IMI) in 2017, the anchor project of the King Salman Maritime International Complex in Saudi Arabia, and set up the engine manufacturing joint venture in 2020.
(Source: https://www.hd.com/en/newsroom/media-hub/press/view?&&detailsKey=1807Accessed08May2026.)

107) "ABS, HD Hyundai and Anduril partner on autonomous surface vessels", Offshore Energy, May 08, 2026. (Source:https://www.offshore-energy.biz/abs-hd-hyundai-and-anduril-partner-on-autonomous-surface-vessels/Accessed08May2026.)

108) "Samsung expands shipbuilding capacity into Vietnam through PetroVietnam pact," (Source:https://www.tradewindsnews.com/tankers/samsung-expands-shipbuilding-capacity-into-vietnam-through-petrovietnam-pact/2-1-1841985)

109) "Samsung Heavy Industries signs a collaboration pact with SDHI", (Source:https://www.tradewindsnews.com/shipyards/samsung-heavy-industries-signs-a-collaboration-pact-with-the-largest-shipbuilder-in-india/2-1-1879094)

110) "Peer Review of the Korean Shipbuilding Industry 2026" OECD Report. (Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/04/peer-review-of-the-korean-shipbuilding-industry_a2993504/c19e0105-en.pdf)

111) "Korean maritime sector to collaborate on AI platform for autonomous vessels", (Source:https://smartmaritimenetwork.com/2026/05/07/korean-maritime-sector-to-collaborate-on-ai-platform-for-autonomous-vessels/Accessedon08May2026.)

112) "Peer Review of the Korean Shipbuilding Industry 2026" OECD Report. (Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/04/peer-review-of-the-korean-shi

and Methanol, of which LNG-capable vessels represent the largest segment. The Table 19[113] below depicts the global scenario.

Table 19. Conventional and Alternative Fuel Ships

Category	China	France	Germany	Japan	Nether lands	Phili ppines	Korea	Türkiye	Viet Nam
Conventi onal fuel	2754	6	6	614	95	55	251	68	111
Alternativ e fuel	996	9	13	72	3	7	421	18	8
Ammonia	30			2			10		
Biofuel	10				2				
Biofuel, Methanol	2								
Ethane	48						17		
Hydrogen				1				2	6
LNG	618	7	10	23			286	7	2
LPG	55			14			72		
Methanol	233	2	3	32	1	7	36	9	
Total	3750	15	19	686	98	62	672	86	119

The marine equipment sector in Korea is relatively well-developed, supplying a large share of domestic demand. However, reliance on imports for certain advanced components persists, particularly in eco-technology segments. Strengthening this ecosystem is a key priority for sust aining competitiveness.

Also, the capability to build warships and submarines is equally remarkable[114] as shown in Table 20.

Table 20. Korea Naval Production Capabilities

Parameter	Auxiliary (ASR/IL)	Corvette (PCC/PKG /PKMR)	Frigate (FFG)	Destroyer (KDX)	Submarine (KSS)
Displacement (t)	4,350 ~ 6,800	250 ~ 1,220	3,200 ~ 4,300	3,900 ~ 12,000	1,400 ~ 3,750
Propulsion	Diesel-electric	CODAG / CODOG	MT30 CODLOG	LM2500 COGAG; CODOG	Diesel Electric + AIP + Li-ion
Speed (knots)	15 ~ 20	32 ~ 44	30	30	12 (surface); 20 (submerge)
Range (nm)	9,500 ~ 10,000	600 ~ 4,000	3,200 ~ 4,500	4,500 ~ 5,500	10,000 (surface); 1,250 (submerge)
Average Cost Estimate (U$mn)	up to 400	20 ~ 60	250 m ~ 511	450 mn ~ 1,500	380 mn ~ 2000
Average Build Time years	2 ~ 3	0.8 ~ 2	2 ~ 3	2 ~ 3	4 ~ 5

pbuilding-industry_a2993504/c19e0105-en.pdf)

113) Ibid. Peer Review Report.

114) “Korean Shipbuilding Capacity” Stimson.
(Source: http://stimson.org/2025/south-korean-shipbuilding-capacity/)

Despite these strengths, the industryfaces several challenges. Labour shortages have emerge d as a major constraint, with employment declining significantly over the past decade with shipyard local employment declining by 44 per cent between 2014 and 2023, and skilled work ers accounting for only 28 percent of the workforce in 2023. The other challenge is the dimini shing participation of young workers in shipyards as shown in the Table 21[115].

Table 21:Age Profile of Shipyard Staff

(% of the Total Workforce in the Respective Year)

Year	20-29 Years	30-39 Years	40-49 Years	50-59 Years	60+ Years
2011	18.4	31.0	29.3	19.5	1.8
2012	20.6	59.3		20.0	
2013	22.9	36.9	22.8	16.6	0.7
2014	20.5	34.5	27.3	16.8	0.8
2015	16.1	33.8	30.3	19.0	0.7
2016	13.5	29.5	34.6	21.3	1.1
2017	13.3	30.8	37.0	18.1	0.8
2018	12.1	30.3	41.4	15.3	0.8
2019	10.8	37.9	32.7	17.7	1.0
2020	11.8	33.4	35.2	18.1	1.5
2021	12.6	27.2	42.2	16.3	1.6
2022	16.6	31.2	34.8	16.6	0.9
2023	13.3	28.9	33.8	22.9	1.0

To mitigate these labour constraints, major shipbuilders have recruited foreign workers, wh o now represent approximately 15 per cent of total employees[116].

Cost pressures also remain a concern. Rising wages and input costs, particularly for steel, have eroded some of Korea's traditional advantages. While the industry has responded by mov ing up the value chain, maintaining competitiveness in the face of lower-cost competitors remains an ongoing challenge.

Overall, the Korean shipbuilding industry remains a global leader, characterised by strong technological capabilities, integrated supply chains, and robust policy support. However, struc tural challenges, particularly in labour and cost competitiveness, necessitate new strategies,

115) "Peer Review of the Korean Shipbuilding Industry 2026" OECD Report.
(Source:https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/04/peer-review-of-the-korean-shipbuilding-industry_a2993504/c19e0105-en.pdf)

116) Ibid. Peer Review Report.

including international collaboration and capacity diversification.

5. Opportunity Analysis[117)]

5.1 The Fleet Replacement Market

Targeting the replacement market offers a strategic pathway to accelerate fleet modernisation through indigenous shipbuilding. Revised age norms issued by the Directorate General of Shipping in 2023 mandate the phased withdrawal or upgrading of older vessels by 2026, reinforcing the need for the timely induction of modern tonnage[118)]. The scale of the replacement opportunity is significant. In 2024, 631 ships representing approximately 6 million DWT were built more than 25 years ago, as compiled in Table 22,[119)] making continued operation increasingly inefficient, costly, and non-compliant with modern regulatory requirements. This creates a demand environment driven primarily by regulatory and lifecycle imperatives rather than trade growth, offering a stable and predictable order pipeline for domestic shipyards

This trend mirrors global developments as shown below. Internationally, as Table 23 shows, the average DWT of new ships is significantly larger than old ships[120)]. Forexample, a 20-year-old tanker was only of 20,977 DWT where as a 4 year old tanker was more than 4 times bigger at 88,519 DWT.

117) This section draws upon the Discussion paper “Shipbuilding Strategy for India” Sujeet Samaddar and Anushka Tripathi, RIS, New Delhi.

118) This Order is under review and recommendations from IIM, Indore are being examined for a final policy announcement.
(Source: https://dgma.gov.in/shipping-development/shipping-dev-report-publication-public-notices Accessed 10 May 2026.)

119) Author compiled the data from the “Quarterly Indian Tonnage Statement as on 31.12.2023,”Directorate General of Shipping.
(Source:https://www.dgshipping.gov.in/WriteReadData/userfiles/file/(31122023)%20Final%20Indian%20Tonnage%20Statement%20.xls)

120) “Review of Maritime Transport, 2024”.
(Source: https://unctad.org/system/files/official-document/rmt2024_en.pdfAccessedon18March2026.)

Table 22. Fleet Profile of Indian Fleet older than 25Years

Fleet Profile : Vessels > 25 Years old																		
Year of Build	Bulk Carriers		Dredgers		Gas carriers		General Cargo		Tankers		Tugs		OSVs		Others		Total	
	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT	Nos	DWT
<1970			1	16,385			6	5,593			4	632	2	836	10	1,585	23	25,031
1971-1975	2	76,164	4	12,898			3	3,244	2	4,489	10	1,510	9	6,861	4	803	34	105,969
1976-1980	8	21,709	5	26,996			10	26,061	5	132,536	15	4,274	8	11,298	6	8,897	57	231,771
1981-1985	13	385,316	3	15,335	1	29999	20	88,717	8	348,414	28	6,198	47	65,427	19	8,255	139	947,661
1986-1990	4	162,542	4	27,213	1	1302	10	67,965	9	432,424	15	989	12	20,254	26	9,064	81	721,753
1991-1995	5	146,338	3	6,588	6	163235	33	372,661	15	948,512	31	3,157	4	5,487	29	8,656	126	1,654,634
1996-2000	12	558,853	4	31,719	1	27200	22	268,127	26	1,373,468	53	6,588	18	38,239	35	17,715	171	2,321,909
Total	44	1,350,922	24	137,134	9	221736	104	832,368	65	3,239,843	156	23,348	100	148,402	129	54,975	631	6,008,728

Table 23. International Average Size Profile by Ageand Vessel Type

Ship Type	0-4	5-9	10-14	15-19	>20
Bulk Carriers	83,752	80,858	75,558	68,374	50,202
Container Ships	68,382	81,065	63,231	42,856	28,566
General Cargo	6,246	5,777	6,673	4,715	2,743
Oil Tankers	88,519	74,244	66,393	63,151	20,977
Other Ship Types	7,942	7,144	4,554	6,764	3,109
All Ships (Average)	36,893	34,007	32,488	25,415	7,213

Note: Age Profile and Average DWT of World Fleet (in Years)

It can be observed from Table 24 that developing economies account for a significantly high er share of older vessels, with 20.1 per cent of their deadweight tonnage (DWT) falling in the 20+ year age category, compared to just 7.5 per cent for developed economies. This indicates a relatively older fleet profile in developing countries, whereas developed economies maintain a younger and more modern fleet. Herein lies an opportunity for collaboration to address thir d country markets.

Table 24. Age Distribution of Ships of Developing and Developed Countries[121]

Category	% in DWT						
	0-4 Years	5-9 Years	10-14 Years	15-19 Years	> 20 Years	2023 (Average Age)	2024 (Average Age)
Developing economies	17.9	17.0	27.6	17.5	20.1	13.2	13.6
Developed economies	21.5	22.5	33.3	15.3	7.5	10.8	11.1

The implementation of IMO regulations for Net Zero Shipping, coupled with impending fuel transition requirements, has incentivised a prolonged, regulation-driven modernisation phase that bodes well for the global fleet replacement market. Demand for alternative fuelled ships is increasing[122] which is not merely a process of replacing old ships with 'like-for-like' capac ity, but rather a structural upgrading of the global fleet towards larger, more efficient, technol ogically advanced and environmentally compliant fleet. For India, this transition could help Indian shipyards, particularly greenfield shipyards, to induct technologies and systems for futu re ready 'new build' ships.

To leverage this replacement opportunity into shipbuilding orders a comprehensive Nationa l Vessel Scrapping Policy directly aligning with the Hong Kong International Convention (HK C)[123], is essential. This policy should designate vessels older than 25 years as 'end-of-life vessels' to mitigate safety risks, reduce emissions, lower effluents and contain pollution at the same time incentivising new builds through a Tradeable Credit Note (TCN) system offering certificates equivalent to 40 per cent of a vessel's scrap value but only redeemable exclusively at Indian shipyards. In this way, India can create a self-sustaining demand pipeline for sustain able shipbuilding and simultaneously promote circularity in shipbuilding.

5.2 Capitalise Coastal Requirements

Water transport provides a clear operational advantage over other modes in terms of efficie

121) Ibid.
122) "Alternative-fuelled ship orders remain significant in 2025". The article states, "According to LR analysis of Clarkson's data, in 2025, owners ordered 590 merchant and leisure vessels1 totalling45.5mGTcapableofoperatingonalternativefuelsatdelivery.Thetotalalternativefuelcapableorderbooknowstandsat 1,942shipswith1,259settouseLNG,385tousemethanol,139usingLPG,53vesselsequippedtousehydrogen,55ethane,45ammo nia,22biofueland4nuclear-capable". (Source:LlyodsRegister,https://www.lr.org/en/knowledge/insights-articles/alternative-fuelled-ship-orders-remain-significant-in-2025/)
123) " Understanding and managing the regulatory landscape of ship recycling". DNV (2025). (Source: https://www.dnv.com/ Accessed on 20 April 2026.)

ncy, fuel consumption, and cost. The comparative efficiency of waterways relative to rail and road transport is illustrated in Table 25.

Table 25. Comparative Features of Modal Transports

Parameter	Waterways	Rail	Road
Energy efficiency (1 HP moves cargo in kg)	4,000	500	150
Fuel efficiency (1 litre fuel per ton-km)	105	85	24
Transport cost (INR per ton-km)	0.3	1.0	1.5
Equivalent carrying capacity	1 barge	15 wagons	50 trucks

Despite these advantages, the utilisation of coastal shipping in India remains relatively low at about 6 - 6.4 per cent.[124] MIV30 sets out explicit goals to enhance the modal share of coastal shipping and inland waterways. Looking further ahead, MAKV47 sets a target of about 1,300 MTPA with a modal share of 12 per cent for coastal cargoes.[125]

The commodity profile of coastal cargo is strongly skewed towards bulk and liquid bulk carg oes, reflecting the inherent suitability of coastal shipping for high-volume, low-value and long -haul movements. As per a Report[126]"Coal emerged as the single largest coastal commodity, accounting for 116.7 MMT (around 35%) of total coastal cargo, Petroleum and Oil Products (POL) constituted the second largest segment at 78.9 MMT (24%), Iron ore and pellets accounte d for 83.2 MMT (25%), and Containerised coastal cargo, reached 20.6 MMT. "Others" category, comprising cement, building materials, steel, foodgrains, and miscellaneous break-bulk cargo, accounted for 31.8 MMT."

To rebalance the transport mix, the "Go Coastal" initiative proposes that public sector under takings (PSUs), government agencies, and cooperatives shift 10 per cent of their monthly carg o, such as food grains, coal, fertilisers, and other bulk commodities, to coastal shipping and inland waterways.

Based on cargo projections[127] and assumingvessels with appropriate DWT as depicted in Table 26, to cater for existing shipyards' capability and navigation limitations in minor ports, the demand for bulk carriers, product tankers and container ships is estimated as follows:-

124) "Coastal Shipping in India - Potential for growth and Action Framework", Committee on Coastal Shipping Ministry of Ports, Shipping and Waterways, January 2026.
(Source: https://dgma.gov.in/download/1769691524_697b598415456_coastal-committee-report-final-jan2026.pdf)
125) Maritime Amrit Kaal Vision 20247, pg 125.
(Source:https://shipmin.gov.in/sites/default/files/Maritime%20Amrit%20Kaal%20Vision%202047%20%28MAKV%202047%29_compressed.pdf)
126) "Coastal Shipping in India - Potential for growth and Action Framework", Committee on Coastal Shipping Ministry of Ports, Shipping and Waterways, January 2026.
127) Data sourced from the Maritime India Vision 2030. Relevant Exhibit Numbers are shown in the Table itself.

Table 26. Requirement Analysis for MeetingCoastalCargoTargets

(Requirement Analysis for Coastal Cargo Carriers by 2035, Illustrative)

Product (Reference from MIV 2030)	Projected Cargo (MMT)	Ship Size (DWT) Tons	Indicative NT (Tons)	No of Voyages /month	Ships Required (Nos)	Unit Cost INR (Crs)	Total Cost INR (Crs)	Total Build (DWT)
Bulk/Break Bulk			0.6					
Coal (Ex 1.1.7)	100	50,000	30,000	2	139	320	44,444	6,944,444
Iron Ore (Ex 1.2.1)	105	50,000	30,000	2	88	320	28,000	4,375,000
Steel (Ex 1.30)	14	8,000	4,800	3	49	20	972	388,889
Cement (Para 1.2.1.5)	13	8,000	4,800	3	45	20	903	361,111
Fertilisers (ADB report)	6	8,000	4,800	3	21	20	417	166,667
Total Bulk Carriers					341		74,736	12,236,111
Containerised (TEU)	Projected Cargo	Ship Size TEU	Indicative DWT (Tons)	No of Voyages /month	Ships Required (Nos)	Unit Cost (2022) INR (Crs)	Total Cost INR (Crs)	
Cotton (MMT)								
Ceramics (MMT)	15	1,700	30,600	3	12	220	2,568	357,143
Food Grains (MMT)								
Cars (nos)	800,000	1,000	18,000	4	133	112	14,933	2,400,000
Other goods (MMT)	50	1,700	30,600	3	37	220	8,170	1,136,364
Total Container Carriers					182		25,671	
POL (Ex1.1.0) (MMT)	100	10,000	6,000	3	278	360	100,000	2,777,778
Total Product Tankers					278		100,000	
Total Outlay					801		200,407	18,907,395

Note 1. 8000 DWT ships can be built in several Indian shipyards and can service majority of the minor ports.
2. 50,000 DWT ships can only be built at CSL, L&T (modular), HSL and SDHI.
3. There is no fixed conversion factor between TEU to DWT. Indicative range is between 14- 18 DWT/TEU

In summary, achieving the MIV 2030 targets would require a minimum operational fleet of about 19 million DWT for the coastal traffic alone at an estimated investment of about INR 2 lac crore (2026 prices). Even assuming a very reasonable lay off due repairs and refits at 10 per cent the reserve requirement moves up to about 21.5 million DWT. The expansion of coastal shipping under the “Go Coastal” initiative also has direct implications in promoting India’s ancillary shipbuilding industry, particularly for the production of marine engines, steer ing gear, radars, etc., whose capacities and technology are limited at present.

5.3 EXIM Shipping

For FY 2025-26, India's total EXIM cargo handled at ports was 915 million metric tonnes (MMT)[128]. Given that over 95 per cent of India's EXIM trade, by volume, is carried by foreign shipping lines, at an estimated freight cost of about US $ 85 billion,[129] this cargo base can be converted into fleet requirements using standard assumptions on vessel size, utilisation rate s, and turnaround cycles. The conversion of cargo volumes into fleet requirements is based on a structured segmentation of cargo into dry bulk, liquid bulk, liquefied gases, and container ised cargo streams, each mapped to representative vessel classes prevalent in global shipping markets. The extant requirement is shown in Table 27.

Table 27. Vessel Requirement to ship Existing EXIM Cargo

Cargo Segment	Share (%)	Cargo (MMT)	Typical Vessel Class	Avg Size	Tonnes per Voyage	Voyages per Year	Estimated No of Vessels
Dry Bulk (coal, ore)	45	412	Panamax/Kamsarmax	75,000 DWT	45000	20	275
Crude Oil and Petro Products	34	311	Aframax /VLCC mix	150,000 DWT	95000	12	273
LNG/LPG	6	55	LNG Carriers	170km³	70,000	12	65
Containers & General	15	137	Container ships	8000 TEU	112,000	18	102
Total	100	915	-				715

The estimates indicate a steady-state requirement of more than 700 vessels. Accounting for lay-o ffs and repairs at even 10 per cent the requirement rises to about 800 ships, reflecting the minimu m fleet size required to service India's current EXIM trade indigenously.

India's EXIM cargo volume is projected to grow to between 6 - 10 billion MMT by 2047 with bulk capacity projected at about 2.8 to 3.5 billion MMT and container traffic reaching between 180 - 210 million TEU[130]. Shipping 6 billion MMT, assuming the same cargo segmentation, would potentially grow to levels as depicted below in Table 28.

128) "Major ports handled 915.17 million tonnes of cargo in FY26: Sonowal". (Source:https://infra.economictimes.indiatimes.com/news/ports-shipping/indias-major-ports-achieve-record-cargo-handling-of-91517-million-tonnes-in-fy26/130489541Accessed1May2026.)

129) "Exclusive: India plans new shipping firm to capture revenue from growing trade,"Reuters, 5 June 2024. (Source:https://www.reuters.com/world/india/india-plans-new-shipping-firm-capture-revenue-growing-trade-2024-06-05/)

130)Maritime Amrit Kaal Vision 2047, pg 490. (Source:https://shipmin.gov.in/sites/default/files/Maritime%20Amrit%20Kaal%20Vision%202047%20%28MAKV%202047%29_compressed.pdf)

Table 28. Projected Fleet Requirement for 2047 Cargo Targets

Cargo Segment	Share (%)	Cargo (MMT)	Typical Vessel Class	Avg Size	Tonnes per Voyage (NT)	Voyages per Year	Estimated No of Vessels	Unit Price (2026) (US$ mn	Total Cost (US$ mn)
Dry Bulk (coal, ore)	45	2925	Panamax/ Kamsarmax	75,000 DWT	45000	20	1950	30	58,500
Crude Oil and Petro Products	34	2210	Aframax / VLCC mix	150,000 DWT	95000	12	1939	80	58,170
LNG/LPG	6	390	LNG Carriers	170,000m³	70,000	12	464	250	116,000
Containers & General	15	975	Container ships	8000 TEU	112,000	18	725	14000	81,200
Total	100	915	-	-	-	-	5078		313,870

Assuming a replacement life of twenty years, the final demand numbers could well exceed 6,000 vessels of the configuration described above. These numbers underscore a core strategic reality. India's own trade can drive shipbuilding demand over the next two decades. This implies that a self-sustaining demand pipeline can be created if combined with a domestic shipping policy that prioritises Indian-built and Indian flagged vessels, specifies End-of-Life criteria for shipping in Indian waters and without depending on export orders in the near term.

An illustrative example from the automobile export sector reinforces this point. As per auto motive export data[131)] , India’s automobile exports, in 2024, were as shown below in Table 29.

Table 29. Automotive Exports Snapshot

(Thousands, %)

Category	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Growth
Passenger Vehicles	662	404	578	663	672	770	15
Commercial Vehicles	60	50	92	79	66	80	21
Three Wheelers	502	393	500	366	300	306	2
Two Wheelers	3,519	3,283	4,443	3,652	3,458	4,198	21
Total	4,744	4,131	5,613	4,759	4,496	5,356	19

131) “International Trade Statistics”, SIAM.
(Source: https://www.siam.in/cpage.aspx?mpgid=8&pgid1=11&pgidtrail=128.Accessedon3May2026.)

The shipping requirement to move 5.35 million units is split between Ro-Ro (Roll-on/Roll-off) vessels for larger vehicles and Container ships for smaller units (such as two and three wheelers). The shipping requirement can be quantified as follows:-

a. Ro-Ro Vessel Trips (Passenger & Commercial Vehicles).For larger vessels that is passenger cars and commercial vessels the total Car Equivalent Units (CEU) load is 1,010,000 CEU. Assuming a nominal Pure Car Carrier (PCC) capacity of 5,000 CEU shipping these cars would require 202 voyages. Assuming that a PCC could at best manage 15 voyages in a year the total PCC requirement is about 25 Ships for the present exports.

b. Containerised Cargo. For the two/three-wheeler segment, assuming about 30 units and 15 units respectively per TEU would need a voyage capacity of 160,000 TEUs.

In summary, the shipping requirement for India's automobile exports in 2024, are as shown in Table 30.

Table 30. Fleet Requirement for Meeting 2025 Automotive Exports

Shipping Mode	Vehicle Categories	Units Moved	Estimated Logistic Load	Number of Ships
Ro-Ro Trips	PV & CV	850,000	202 Ship Voyages	25 x 5000 CEU
Containers (TEU)	2W & 3W	4,504,000	160,000 TEU	-

The growth rate for automotive exports, as mentioned above averages 19 per cent. Even with a very conservative 10 per cent CAGRof automotive exports until 2047 the shipping requirements for the projected 7.6 million PVs/CVs and about 40 million 2W/3W would require a minimum of 2000 voyages and 1.8 million TEUs respectively.

As India positions itself as a global automobile manufacturing and export hub, the demand for purpose-built car carriers and Roll-On/Roll-Off (RoRo) vessels becomes a tangible near-term opportunity for Indian shipyards to develop specialised capability. Partnering with Korea for building these advanced technology PCCs is a readily recognisable opportunity, as Korea Shipbuilding & Offshore Engineering Co. (KSOE), a major Korean shipyard, has entered this segment with an order to build two vehicle carriers for a Middle East-based shipper[132].

5.2 Tapping Inland Tonnage

India's inland waterways sector has emerged as a rapidly expanding component of the broader maritime transport ecosystem, with significant implications for vessel demand and shipbuilding. Inland waterways also serve remote and hinterland regions, enhancing logistical connec

132) "Shipyard KSOE bags W331.8w order for 2 vehicle carriers". The Korea Herald. 14 September 2022. (Accessed 12 May 2026).

tivity and reducing transport costs and are, therefore, increasingly being integrated with coast al shipping.

As per a DG Shipping Report[133] "Inland water transport (IWT) sector in India has significant potential to complement coastal shipping for feeder and evacuation as against road and rail. Currently, the IWT sector's traffic volume stands at 146 million MT in FY-25, witnessing growt h at a CAGR of approximately 15% in the last five financial years, wherein the contribution of cargo is over 90% by volume. Inland waterways carry a wide variety of cargoes but predomi nantly Iron Ore, Steel, Coal, Cement, Clinker, Machineries (including project cargo) are some of the major coastal traffic commodities which are handled on the waterways. In addition, liquid bulk goods such as chemicals and POL also accounts for a substantial volume of the overall coastal traffic handled by the national waterways…..Passenger movement has similarly expanded, reaching over 16 million passengers annually in recent years." Moreover, inland waterway vessel construction offers opportunities for technological innovation in areas such as low-emission propulsion, modular construction, and standardised hull designs.

India's national policy aims to increase the modal share of inland waterways from approxim ately 2 per cent to 5 per cent, with cargo volumes projected to exceed 200 MMT by 2030 and potentially reach 500 MMT by 2047[134]. This implies a substantial expansion in inland vessel requirements, particularly in the categories of self-propelled barges, push boats, roll-on /roll-off vessels, and specialised craft for container and liquid cargo transport.

The shipbuilding implications of this expansion are significant. Unlike ocean-going vessels, inland vessels are typically smaller in size, with shallower drafts and lower capital costs, makin g them well-suited for distributed production across a wider network of shipyards. To estimate inland vessel requirements the cargo-to-fleet conversion can be expressed as a simple throug hput relationship between annual cargo, vessel capacity, and voyage frequency. For a carrying capacity of 300 NT and a relatively high utilisation rate of 24 voyages per year 7,200 tonnes of cargo could be shipped by one barge annually. Applying this capacity benchmark to current inland waterway traffic levels of 145.5 MMT yields a requirement of just over 20,000 barges of 500 DWT each. As cargo volumes increase in line with policy targets, the implied inland fleet requirement rises close to 70,000 such barges for the projected cargo of 500 MMT by 2047.

These estimates highlight the scale implications of inland waterway expansion. Even allowin g for higher-capacity vessels, convoy operations, or improved load factors, the order of magni tude remains significant. This reinforces the role of inland waterways as a major additional

133) "Coastal Shipping in India: Potential for growth and Action Framework, January 2026", (Source: Committee on Costal Shipping, Ministry of Ports, Shipping and Waterways.)

134) Maritime Amrit Kaal Vision 2047, pg 125. (Source:https://shipmin.gov.in/sites/default/files/Maritime%20Amrit%20Kaal%20Vision%202047%20%28MAKV%202047%29_compressed.pdf)

demand driver for domestic shipbuilding, particularly in standardized, shallow-draft vessel seg ments that can be produced at scale across distributed shipyard networks.

In this context, inland waterways complement the EXIM-driven demand for ocean-going ves sels by providing an additional, domestically anchored market for shipbuilding. Together, thes e segments create a multi-layered demand structure spanning deep-sea shipping and inland transport, thereby strengthening the case for a comprehensive and self-sustaining maritime industrial ecosystem.

6. The Case For India-Korea Synergy

6.1 Political Directions

The President of the Republic of Korea (ROK), H.E. Lee Jae Myung paid a State Visit to India from 19 - 21 April, 2026, accompanied by a high-level delegation including Ministers, Senior Officials and leading CEOs of Korean Companies. In a statement to the Media, Presiden t Lee Jae Myung stated "The Prime Minister and I shared the view that, in these uncertain times, Korea and India are well positioned to become ideal partners for comprehensive coope ration that fosters mutual growth and innovation. In line with this, we agreed to further advan ce our economic cooperation, while expanding collaboration in shipbuilding, finance, artifici al intelligence, national defense, the defense industry and other strategic areas".[135)]

Several notable outcomes are as mentioned below[136)]:-

The two leaders acknowledged the similarity of their nations' visions of a free, open, peacef ul and prosperous Indo-Pacific region based on the rule of law. In this context, Prime Minister Modi welcomed the Korea joining the Indo-Pacific Oceans Initiative (IPOI).

The launch of an India-ROK Economic Security Dialogue that aims at enhancing resilience in supply chains, promoting market diversification and advancing cooperation in cutting-edge technologies based on mutual strategic trust.

Most importantly, "India's Maritime Amrit Kaal vision has unleashed new opportunities for long-term and strategic bilateral collaboration with the Korea, a leading shipbuilding and mar itime nation. The two sides adopted a Comprehensive Framework for Partnership on Shipbuil

135) "Joint Press Statement by President Lee Jae Myung on the occasion of the Korea-India Summit", Embassy of India, Korea.
(Source:https://www.indembassyseoul.gov.in/joint-press-statement-president-lee-jae-myung-occasion-korea-india-summit)

136) "Joint Strategic Vision for India-ROK Special Strategic Partnership", 20 April 2026. Ministry of External Affairs. (Source:https://www.mea.gov.in/bilateral-documents.htm?dtl/41066/Joint_Strategic_Vision_for_IndiaROK_Special_Strategic_PartnershipAccessedon03May2026.)

ding, Shipping and Maritime Logistics and looked forward to its early implementation. The two leaders welcomed and expressed support for a range of B2B collaborations concluded and planned between Indian and Korean businesses for shipyard development, critical infrastructure required for shipyard establishment, port operations, and shipping & maritime logistics in India. They welcomed the opening of office of Korea Marine Equipment Association (KOMEA) in Mumbai, the first such office that will contribute to the development of ancillary ecosystem to support the maritime industry."[137]

As per a PIB Release, "Both sides agreed that India's maritime ambitions under Maritime Amrit Kaal 2047 Vision have created considerable opportunities for long-term collaboration with the ROK. Co-operation in shipbuilding, port development and maritime logistics could channelize the India-ROK Special Strategic Partnership towards practical benefits and economic value for both nations" [138]. Concurrently, negotiations to upgrade the Comprehensive Economic Partnership Agreement (CEPA) aim to deepen industrial integration which have explicitly identified shipbuilding as a core domain of strategic cooperation with India.

6.2 Industrial Partnering

Meanwhile, industrial engagements have gathered an unprecedented pace. CSL and HD Hyundai (KSOE) concluded an MoU in 2025, which specifically addressed joint global shipbuilding opportunities facilitative technology transfer, productivity enhancement through upskilling and smart shipbuilding infrastructure such as robotic welding, module transporter and high capacity goliath cranes. Cluster approach has also been explored in the Toothikudi project which include co-located upstream material, equipment and machinery suppliers including a specialised steel making unit as a Joint Venture between POSCO-JSW steel replicating Korea's highly successful "Ulsan" production ecosystem.

From the foregoing, the case for synergy between India and Korea in shipbuilding rests on the principle of complementary capabilities. Korea's strengths in technology, design, and high-value manufacturing can be combined with India's advantages in cost, labour, and market potential to create a mutually beneficial partnership. Such collaboration can occur across the entire value chain of shipbuilding.

6.3 Designing and Building the Right Ship

137) Ibid.
138) "India-ROK Comprehensive Framework for Partnership in Shipbuilding, Shipping and Maritime Logistics: Shared Vision for Operation of Yard Assisted Growth with Efficiency and Scale (VOYAGES)". (Source: https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2253976&reg=3&lang=2)

Beginning with a market analysis of the potential 'most suitable' ships to meet futuristic demands in terms of capacity, autonomous navigation, propulsion and crewing requirement a joint outline specification in terms of Tonnage and Draught restriction could be prepared in alignment with India's EXIM cargo and coastal cargo profile.

A sound basis for collaboration could begin with design and engineering of high technology vessels such as Gas Carriers and Ultra Large Container ships. Green and digital shipbuilding present particularly promising areas for collaboration. Joint development of alternative fuel vessels, smart ship technologies, and energy-efficient systems can position both countries at the forefront of industry transformation. Leveraging Korea's technological expertise and Indi a's emerging capabilities could accelerate innovation.

These new designs could either be clean sheet conceptual design or existing designs configu red to 'function, fit and form" of Indian material and machinery availability. Facilities for simu lations and model testing could be undertaken at the Indian Ship Design center. Subsequent detailed structural design, verification and validation of drawings as built to specifications, preparation of work breakdown structures and digital twins of constituent modules can also be undertaken in India.

The next step is joint production. To gain immediate traction for India-Korean joint venture s in shipbuilding existing orders on Korean shipyards could be transferred to Indian shipyards to compress build periods, facilitate early delivery and open up 'shipyard' space for new order s won by Korean shipyards. Korean firms could leverage Indian shipyards for labour-intensive stages of construction, while retaining control over design and high-value components. This model would enable cost optimisation while maintaining quality standards. Such initiatives wo uld contribute to long-term capacity building

Technology transfer and skill development represent another critical dimension. Collaborati ve training programmes, joint research initiatives, and knowledge sharing can help build Indi a's capabilities while addressing Korea's workforce constraints. Potentially, Korean trained In dian workers could add to the shipbuilding workforce in Korea to offset labour shortages in Korean shipyards. Such training must necessarily include soft skills such as language and cultu ral sensitisation.

Supply chain integration offers additional opportunities. Developing a robust ancillary ecosy stem in India, supported by Korean technology and investment, could enhance competitivenes s and reduce dependence on costly imports from the tierised vendors. This would also create new export opportunities, though Indian demand for ships would itself require sizeable produ ction targets for the upstream industries.

Finally, policy alignment is essential for realising these synergies. Coordinated government support, including incentives, financing mechanisms, and regulatory frameworks, can facilitat e collaboration and mitigate risks. Establishing institutional mechanisms for bilateral cooperat ion would further strengthen the partnership.

A summary of the synergies between Korean and the Indian shipyards is as shown in Table 31 below.

Table 31. India-Korea Summary of Synergies

Parameter	India	South Korea
Global Rank	16	2
Production (DWT)	〈40,000	22,630,00
Key Commercial Shipyards	CSL, SDHI, L&T, Shoft	HD Hyundai Heavy Industries, Samsung Heavy Industries, and Hanwha Ocean
Domestic Requirements	Very High	Low
Labour Cost	Low	High
Labour Productivity	Low-moderate	High
Technology Level	Limited: Early thrust on Green Shipbuilding	Advanced: eco-friendly, ammonia, and nuclear-powered (SMR) shipping
Ship Type Focus	Small/medium, defence	LNG, ultra-large vessels, Alternative Fuels
Financing Cost	Very High	Competitive
Supply Chain Depth	Weak	Strong
Export Orientation	Low	Very High

6.4 Marine Engines

India's shipbuilding ambitions are constrained by dependence on imported propulsion systems. Korea, through firms such as HD Hyundai Heavy Industries, Doosan Enerbility and STX Engine, enjoys a global leadership in marine engines. As an aside, Indian defence sector also has requirements for high technology, high power-to-weight ratio engines for main battle tanks (MBT), self-propelled artillery systems (SPAS) and aeroengines. In addition, for the submarine sector, battery-powered electric propulsion systems are also required. In this scenario, STX engines stand out as a potential partner of choice as it possesses dual-use capability for Marine engines for commercial shipping as well as specialised engines for tanks, artillery, and warships, which aligns perfectly with India's demands for engines. Over 90 per cent of its marine engines are exported, making it suitable for setting up a Global Capability Centre (GCC) and manufacturing hub in India to simultaneously address Indian, Korean and third country experts.

As per the merchant marine opportunity landscape discussed earlier, the demand for engine s can be of the order of 8-10,000 engines for the merchant fleet, about 500 engines for the naval fleet, in addition to another +5,000 engines for MBTs and SPAS, over the next 15 years. The collaboration model could be a combination of direct imports for the first 300 engines, followed by Semi Knock Down Kits (SKD) for the next 300 engines, progressing to Completely Knock Down(CKD) and import substitution thereafter, followed by co-design and co-producti on of engines at the proposed GCC. STE, possibly with other industrial partners such as Hyund ai Rotem, could also participate in meeting India's aeroengine needs, particularly High/Mediu m Altitude Unmanned Aerial Vehicles. The partnering philosophy is best explained by the fact that engines, which are the foundation of shipbuilding, are a strategic vulnerability for India, and Korean industry can bridge this weakness.

If India must localise propulsion systems, Korea clearly offers one advantageous pathway, but long-term interests require that localisation must move beyond assembly toward co-devel opment, shared IP and exports to third-country markets.

6.5 Naval Partnerships

As brought out earlier, India's warship building requirements present another opportunity for partnership.

With the last of the legacy 'Russian Origin" minesweepers decommissioned India faces a well-recognised capability gap in mine countermeasure vessels (MCMVs). That presents a criti cal vulnerability in national port defence. MCMVs are unique ships, specially equipped for clearance of channels and sweeping various types of sea mines on the seabed, moored or drifting. As MCMVs operate over minefields, their features must guarantee the achievement of very low radiated pressure, acoustic and magnetic signatures (to avoid the activation of the mines' sensors) and of very high shock resistance (to withstand the underwater shock wave generated by an exploding mine). Therefore, the design and construction of sophisticated MC MVs poses several challenges. These include choice of hull material, form and design; acousti c, pressure and magnetic signature suppression; mine-hunting sonars and remotely piloted vehicles; sensors and sonars; and, redundancy and survivability features.

Korea, however, has developed deep expertise in this domain. Companies such as HD Hyun dai Heavy Industries and Hanwha Ocean bring advanced capabilities in low magnetic signatur e hulls, integrated sonar and mine neutralisation systems and remotely operated modular nava l construction.

The Indian Navy has issued a RFI for 12 Mine Counter Measure Vessels(MCMVs)[139] for the

139) "Request For Information (Rfi) For Procurement of Mine Counter Measure Vessels (MCMVs), Indian Navy, Ministry of Defence.

fourth time. Earlier RFP responses included M/s Kangnam[140] who had won the project but due to procedural lapses and inconclusive negotiations the contract could not be awarded to them. The opportunity has resurfaced and opens a very clear pathway given the larger polit ical understanding on defence collaboration reached during the summit meeting. Indian shipy ards can participate in this RFP by combining domestic construction with Korean design and systems integration. But, this is not just about building 12 MCMVs, which is only an interim requirement against a possible 24 MCMVs but participation in this project can lay the foundati on for creating a regional production and export hub for these class of important vessels that could include customers from the Mid East to Australia who have similar vulnerabilities in minesweeping capability.

Another opportunity is India's submarine acquisition requirements. A 30-year submarine bui lding plan was approved by the Cabinet Committee on Security in 1999. The plan was to induc t 12 diesel submarines by 2012 and another 12 submarines by 2030. Against this plan, only six P75 submarines could be delivered by 2025. A follow-on order for 3 more P75 submarines has been placed, and negotiations for six P75(I) submarines are in progress. Comparatively, Korea's attack submarine program, a three-phase build that began in 1994 and is scheduled for completion in 2029, will deliver 27 submarines, including six 3,000-ton KSS-III submarine s, almost in the same period. Concurrently, India's P76 submarine acquisition program require s indigenous submarine design and production. India's Defence Research and Development Organisation (DRDO) is in the process of submitting a proposal[141] to the Cabinet for approva l. Here, Hanwha Ocean, with its experience in KSS-III submarines, is uniquely positioned as a design partner and not just a builder.

Yet another major opportunity lies in the Indian Navy's (Landing Platform Dock Ships (LPD) program. Hanwha Ocean has bid for the project offering the Dokdo-class amphibious assault ship. The Dokdo specifications, however, falls short of the Indian Navy's requirements but its design could be foundational for joint design and co-production of the LPDs. Noting that LPDs are not just another platform but represent tangible strategic power projection such joint projects can reap large dividends for India-Korea strategic cooperation in line with the shared vison of Free and Open Indo-Pacific and a Rule based order at sea.

If structured correctly, these proposed collaboration opportunities can help India transition from licensed construction to independent design capability concurrently expanding Korea

(Source:https://indiannavy.gov.in/sites/default/files/RFI%20for%20Procurement%20of%2012%20x%20%20Mine%20Co unter%20Measure%20Vessels%20%28MCMVs%29.pdfAccessedon09May2026.)

140) See Kangnam Corporation Report.
(Source: https://cdn.komachine.com/media/company-catalog/kangnam-corporation-12507_fmwyis-0m46aPG.pdf)

141) "DRDO indigenous submarine proposal to go for CCS approval in couple of months; eight years for first sub". The Hindu, February 22, 2025.
(Source:https://www.thehindu.com/news/national/drdo-indigenous-submarine-proposal-to-go-for-ccs-approval-in -couple-of-months-eight-years-for-first-sub/article69251317.eceAccessedon09May2026.)

shipbuilding profile for a larger market that can be jointly addressed.

6.6 Artificial Intelligence: Intelligent Ships

Six core digital technologies would drive transformation in the shipbuilding industry. These are AI, digital twins, smart shipyards, autonomous systems, remote inspection, and robotics[142]. Both India and Korea have strong foundations in digital technologies. Korea has strengths in advanced computer-aided manufacturing technologies, use of automation and robotics in production processes, embedded systems for predictive maintenance and equipment health monitoring and platform-level integration. India also has substantial capabilities that it can bring to the table. These include a well-developed software expertise, the AI and data systems industry, rapidly growing capabilities in defence systems and a vibrant ecosystem of risk-taking start-ups working on autonomy and analytics. This creates a powerful synergy. Future ships, whether it is submarines, LPDs, or LNG Carriers, will increasingly rely on AI-enabled predictive maintenance, autonomous and unmanned systems integration, decision-support systems, and Real-time sensor fusion across platforms and sensors.

7. Policy Roadmap For India-Korea Shipbuilding Synergy

As brought out, shipbuilding is a capital-intensive industry with a gestation period ranging from 12 months to 3 years, depending on the size and type of the vessel being constructed. As stated in Section 3, Indian shipyards face several challenges, including the concentration of technology in public shipyards and the underutilization of private shipyards. Overdependence on naval shipbuilding orders, productivity below global standards, only a handful of large-vessel building shipyards, an inadequate ancillary ecosystem and a lack of stable and easily accessible funding further amplify the weakness in the sector.

However, the shipbuilding industry in India has the potential to expand its shipbuilding capability given its extensive coastline, existing design and engineering expertise, and adequate labour. Korea's major shipyards specialise in box ships, tankers, and bulk carriers with noted capability in low-emission vessels such as LNG and LPG fuelled vessels, and usage of smart technology in the sector. Major shipping players in the Korea are pursuing global expansion to the American and Vietnamese markets, but India, actually, provides a natural alternative owing to its cost-effective labour base and its high domestic demand for ships.

However, collaboration needs a highly calibrated approach that truly measures monitors an

142) "HD Hyundai at the heart of global shipbuilding, unveils future blueprint at APEC". (Source: https://www.hd.com/en/newsroom/media-hub/press/view?detailsKey=3802)

d manages the competitive advantage presented by both countries for mutual benefit. This could be structured as follows:-

a. Phase I (Industrial Alignment). Initially, there should be a fairly objective and detailed understanding of the existing capabilities presented by Indian shipyards, and incentives provided by the government. Once a level of understanding and confidence has been realised Korea shipyards should begin with placing orders on Indian shipyards to assess their efficiencies, understand the work culture that would help evaluate whether joint ventures or wholly owned subsidiaries would best serve the purpose. The regulatory, compliance and legal issues require a fair deal of understanding and such projects should mature with caution to prevent conflicts or misunderstandings in the future. Nevertheless, whatever the model, advanced design software, build strategies, production planning and a procurement strategy that provides high local content at lower cost would remain of paramount importance. Secondly, standardisation in classification norms may be done through a bilateral shipbuilding task force that promote mutual recognition of the classification societies and registers of both countries. Thirdly, financing mechanism must be addressed particularly issues such as local currency denominated payments for products sourced from each others vendor participants. Fourthly, offshoring labour-intensive stages of shipbuilding—such as hull fabrication and block assembly—to Indian shipyards could be considered. India, in turn, can leverage this outsourcing to build scale and improve productivity.

b. Phase II (Capacity building) After addressing structural issues in the first phase and establishing a strong shipbuilding ecosystem supported by a robust ancillary base, Korean firms may prioritise the development of shipbuilding clusters, maritime industrial zones linked to ports, marine equipment manufacturers, logistic providers and localisation of raw material supply chains with the support of the state governments at the selected location. In this phase, the focus should be on capacity expansion through investment in brown field or green field shipbuilding clusters modelled on proven designs. Simultaneously, supply chain localisation must be prioritised. Joint ventures in marine equipment, propulsion systems, and ship components can reduce import dependence and create a robust ancillary ecosystem and make cost-competitive products for both the domestic and export markets. India can contribute through engineering talent, software capabilities, and cost-efficient production. The GCCs, potentially funded through bilateral innovation funds, can serve as innovation hubs for technology development. Academic and industry collaboration should be integrated into this framework to build skills in the workforce, including training in Korean Shipyards.

c. Phase III (Co-Development). The end objective of this phase is to leverage the successful capability developments in the second phase for technological convergence between India and Korea. Collaboration on green fuels, smart shipping and digital shipyards, along with joint

R&D centres, may be explored.

The case for India-Korea collaboration moves beyond abstract complementarity and requires a structured, multi-layered policy roadmap. Particularly, Korea's leadership in LNG carriers andeco-friendly vessels, which would mark the major share of the Global Future Fleet provides a strong foundation for collaboration. The objective should be to transition from transactional cooperation to an integrated industrial partnership spanning design, engineering, technology, production, marketing and finance.

8. Conclusion

Shipbuilding is a strategic industry that has not only facilitated globalisation of trade but also created significant domestic economic multipliers by integrating upstream and downstream sectors including producing millions of direct and indirect jobs. Maritime transport facilitates 80 per cent of the global trade volumes, rendering the shipbuilding industry a strategic character, but the sector requires a broad-based industrial ecosystem and proximate ancillary industries which determines its global competitiveness. Shipyards are essentially focussed on fabrication, outfitting and system integration sourcing the steel, material, machinery, and equipment from established vendors.

Shipbuilding over the last three decades has shifted from Europe and the United States towards East Asia, driven by accommodative industrial policy, strong funding, interlinked ancillary ecosystems, low costs and sustained investment deployment in R&D supported by facilitative state policy. In 2025, almost 95 percent of global shipbuilding was located in East Asia with China cornering about 60 per cent of global orders followed by Korea with about 20 - 21 per cent and Japan at the third place with a share of about 13 -14 per cent in terms of DWT.

The global shipbuilding industry, dominated by China, is witnessing a sustained orderbook for new builds across most vessel types, particularly for fleet renewal and technological upgrades in keeping with emerging CII and EEXI requirements. China is expected to maintain its dominant status through its unmatched scale and strong government support, whereas Korea and Japan would possibly be the hi-technology player. Emerging industry competitors such as the Philippines and Vietnam try to survive through cost efficiency and government support. Further, green shipping is poised to define the future course of the industry.

Despite enviable maritime credentials such as an extensive coastline, impressive trade volume, and a robust design and engineering base, India, presently ranks 16th and accounts for only 0.06 per cent of global shipbuilding with about 40,923 DWT as annual production. Aspiring to be in the top 5 shipbuilding nation would require Indian shipbuilding sector to grow at about 18 per cent CAGR to reach one per cent of the global shipbuilding share by 2047, assuming the industry and existing top 5 players continue to grow at the average CAGR of about 4.4 per cent.

Korea, placed 2nd in global shipbuilding rankings, has emerged as a global leader in technologically advanced, high-value vessels such as LNG and ULCCs delivering about 21 million CGT in shipbuilding. However, the Korean shipbuilding industry is grappling with acute labour shortages and rising material and machinery costs as digitisation and new material requirements become necessary for sophisticated shipbuilding. This underscores a compelling case for strategic collaboration between India and Korea.

Presently, India's shipbuilding industry, characterised by the state-owned specialised warship building shipyards and private-sector-dominated commercial shipbuilding has shown capability in the former and constraints in the latter. India's overseas trade is overwhelmingly dependent on foreign-flagged vessels, with Indian-flagged vessels carrying a meagre 4.1 per cent of such trade. Most of the Indian-flagged vessel fleet averaged about 9000 DWT while India's major trade happens in bulk. This creates a compelling case for building large ships in the country. Further, there is a stark difference between India's public sector shipyards and privately owned shipyards. The number of public shipyards capable of building large ships is few but possesses high-end design and engineering capabilities to build complex ships such as aircraft carriers, destroyers, frigates and have order books in billions of dollars, whilst the private sector has large underutilised capacity mostly committed to building small ships of limited complexity such as coastal bulkers, OSVs and Tugs. Indian shipyards face several challenges, such as over-dependence on defence orders, low productivity causing longer production cycles, and lack of long-term, easily accessible capital, which limits the capacity to leverage their full potential.

Realising the strategic importance of the sector, the Ministry of Ports, Shipping and Waterways (MoPSW), announced a comprehensive package of INR 69,725 crore to facilitate commercial shipbuilding through the Shipbuilding Financial Assistance Scheme (SBFAS), Shipbuilding Development Fund (SDF), Maritime Development Fund (MDF) and structural reforms like RoFR giving priority to Indian-built, Indian owned and India-flagged vessels, along with emphasis on green shipping through Green Tug Transition Programme (GTPP). Several initiatives, such as the National Green Hydrogen Mission, have been integrated into the marine sector to support Green Shipping.

India has consistently demonstrated its technological strength in naval shipbuilding, which supports the possibility of introducing an innovative civil-military collaboration that strengthens national security and enhances commercial shipbuilding through advanced design, modularity, and systems integration into mainstream shipbuilding. The projected timelines of the naval shipbuilding program present capacity utilisation for commercial domestic shipyards for the next 10-15 years. This also incentivises India's MSME sector, involved in the naval shipbuilding ecosystem, to evolve into globally competitive suppliers.

Also, while global trade doubled during the 2000-2025 period, the world fleet tripled during the same period, implying overcapacity in the shipping sector. However, the recent directive by the IMO to decarbonise the sector will render a significant share of the global ship fleet obsolete or at least uneconomic and inefficient. This provides India an opportunity to leapfro g the technological transition by investing in greenfield shipyards delivering future proof ship s.

But now, Indian shipbuilding industry not only enjoys policy support at the central level, but at the state level as well. Several state governments, including Tamil Nadu, Gujarat, Mahar ashtra, Andhra Pradesh, and Odisha, have released policy documents incentivising the develop ment of the shipbuilding ecosystem, through concessional land leases for dedicated shipbuildi ng clusters, tax reliefs, improved power and water charges, import duty exemption and subsidi sed finance. This changed landscape has attracted foreign shipyards. Most recently, HD Hyund ai has become the anchor foreign entrant with investment commitments amounting to about US$ 4 billion for developing a greenfield shipyard through domestic partnerships, reflecting a structural shift from order outsourcing towards capacity relocation. Japanese firms, such as Imabari Shipbuilding, is looking for long-term ecosystem development in greenfield shipyar ds and is exploring Dugarajapatanam as a potential global manufacturing node.

As mentioned, Korean Shipyards focuses on building sophisticated LNG carriers and ULCCs, as well as warships such as submarines, mine counter measure vessels and LPDs which highlig ht its technological prowess. Its shipbuilding is highly consolidated, with three major players holding 90 per cent of the market share. Its innovative technologies in alternative fuels, auton omous ships, and digital manufacturing distinguish it from the industry-dominant China and retain its global position. However, labour shortages exhibit a major constraint for the industr y, with rising wages and input costs may limit its future competitiveness.

The opportunity analysis of India's shipbuilding industry outlines huge opportunities in five markets: -

a. First, the replacement market, which is expected to generate demand for 631 ships with approximately 6 million DWT if the revised age norms for operations of ships in Indian waters is implemented. A National Vessel Scrapping Policy aligned with the Hong Kong International Convention (HKC) could be considered to leverage the opportunity from the replacement market. Conservatively, this segment alone would require an invest ment of INR 80 – 1,00,000 crores.

b. Second, Indian coastal cargo share is targeted to constitute about 12 per cent of the modal share by 2047. This mainly consists of bulk and liquid bulk cargo, reflecting a need for high-volume, low-value and long-haul movements. From the analysis of MIV 2030 and the longer term MAKV47 vision targets the minimum operational fleet requirement exceeds 19-21 million DWT requiring a capital outlay of about INR 2,00,000 crores.

c. Third, 95 per cent of India's EXIM cargo is carried through foreign vessels, which leads to foreign-currency outgo of US$ 85 billion. Indian ports handled 915 MMT cargo in FY 2025-26 requiring a minimum of 700 vessels of the configuration mentioned earlier for its shipment. India's EXIM cargo volume is projected to grow to between 6 - 10 billion MMT by 2047 with bulk capacity projected at about 2.8 to 3.5 billion MMT and container traffic reaching between 180 - 210 million TEU. To ship 6 billion MMT cargo would pote ntially require more than 5000 ships worth an estimated US$ 313 billion or about INR 30,00,000 crore.

d. Fourth, inland water transport's impressive growth at a CAGR of 15 per cent in the last five financial years, outlines the commercial opportunity of this transportation chann el. With a target to increase its current share from 2 per cent to 5 per cent, cargo volume s are projected to reach 500 MMT by 2047, which puts the demand at 70,000 self propelle d barges of 500 DWT each for inland cargo movement. This is estimated to be worth about INR 3,50,000 crore.

e. Fifth, participation in warship building projects such as joint design and production of the MCMV, LPD and the P76(I) could add another INR 2,00,000 crore to the opportunit y.

Therefore, combining India's existing capabilities in naval shipbuilding, its huge demand side requirements and its large industrial base with Korea's technological efficiencies and clea r leadership in shipbuilding the future ready fleet in terms of cargo configuration, propulsion systems, and digital designs and robotic manufacturing offers a path to unlock the full potenti al of the collaboration agenda between Indian and Korean Shipyards.

India, with its advantages in low-cost labour drawn from the commercial segment and matur ed fabrication and system integration capabilities from the defence segment can synergise wit h Korea's strengths in technology, design and high-value manufacturing to present a strong case for collaborative synergies. Following a market analysis of the most suitable ship aligning with India's EXIM and Coastal cargo profile collaborations may be possible in areas such as new generation hull design, building Gas Carriers and ULCCs, alternative fuel propulsion engi ne development, supply chain integration and SMART ship technologies. Joint Production of ships at Indian shipyards incentivises Korean shipbuilders with lower labour costs, shorter deli very periods and 'space in their parent companies' for new orders received by them. The colla boration can further be upgraded with technology transfer and skill development.

Another significant opportunity lies in the marine engines segment. India imports most of its propulsion systems. In the coming years, demand is expected to reach 8,000–10,000 engine s for merchant vessels and about 500 engines for naval ships. This presents a strong opportuni ty for companies, such as, STX Engine to localise production in India and leverage local produ ction for the global market.

Digital innovation has enhanced the resilience of the marine sector. Six technologies, includ ing AI, digital twins, smart shipyards, autonomous systems, remote inspection and robotics, have created use cases in the shipbuilding industry. India, through its experience in Digital Public Infrastructure (DPI) stack, along with Korea's strengths in advanced computer-aided manufacturing, automated production processes, and predictive maintenance, can drive digita lisation in the shipbuilding sector.

India and Korea's partnership requires a structured and multilayered policy roadmap for promoting the natural synergies in the shipbuilding sector, implemented through three well-d esigned phases. The collaboration could begin with exploring key areas of industrial alignmen t, not limited to shipyards but also across the shipbuilding value chain. This would identify specialised deficiencies or surplus skill sets, capability and capacities on both sides, following which an optimisation road map can be developed. This may be undertaken over a period of about 2 years. The desired outcomes should include joint ventures between Korean shipbuil ders and Indian shipyards, ancillaries on both sides, including ship-specific steel production, a bilateral shipbuilding task force for regulatory standardisation and a harmonised funding mechanism.

In the second phase, capacity building, for the next 2-5 years, could be the joint priority. Korean firms can outsource labour-intensive stages of shipbuilding to India to leverage the labour cost arbitrage and also help tide over the lack of youth participation in Korean Shipyar ds. Following this phase the development of dedicated maritime clusters to localise the supply chain and reduce import dependence could be conceived.

In the third phase the focus could be concentrated on co-development of next generation ships. For the next 5-15 years, technological collaboration is a must to ensure long-term partn ership in areas such as green fuel systems, smart ships and autonomous navigation and digital shipyards. Joint R&D at the GCCs will further contribute to this.

Korean President's recent visit to India carries significance as the two countries announced the Joint Strategic Statement, including a Comprehensive Framework for Partnership in Shipb uilding, Shipping and Maritime Logistics. This framework seeks to institutionalise long-term cooperation across key maritime sectors. It focuses on modernising India's shipbuilding indust ry through technology transfer, joint ventures, and integration of Korean firms into domestic supply chains. The framework also promotes collaboration in port development, infrastructur e expansion, and logistics efficiency, including Korean participation in India's port-led develo pment initiatives. A major emphasis is placed on advancing maritime technologies, including green shipping, port automation, and smart logistics systems, as well as on joint research and innovation. It further highlights skill development through training programmes and the utilis ation of India's seafarer workforce. By encouraging private sector engagement and strengtheni ng resilient supply chains, the framework aligns India's maritime ambitions with Korea's advanced capabilities. Overall, it represents a shift toward deeper industrial and technological cooperation, reinforcing the bilateral partnership within the broader Indo-Pacific maritime landscape. Industrial-level engagement, such as an MoU between CSL and HD Hyundai, has further strengthened the partnership.

The pathway for synergistic collaboration for shipbuilding has been prepared at the Summit Meeting. It is now the task of the industry, supported by academia, to take the next steps for the rapid growth of this strategic sector and reap its multiplier dividends in job creation and economic development.

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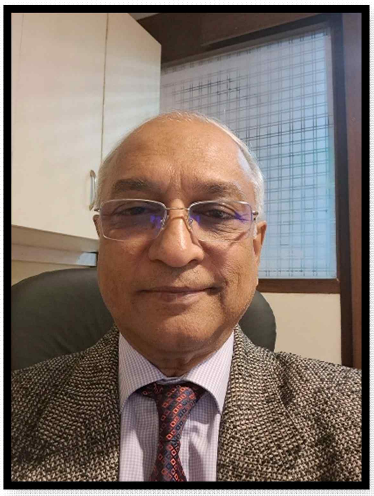

Born on April 8, 1958, Samaddar graduated from IIT Roorkee (B.E) in 1978. Samaddar began his career as an Engineer Trainee with Tata Consulting Engineers, Mumbai. After being commissioned into the Indian Navy in 1980, he held various staff appointments and commanded four warships before taking an early retirement in 2009 in the highly prestigious appointment of Principal Director Naval Plans, Naval Headquarters, New Delhi, responsible for acquisition, infrastructure and financial planning of the Indian Navy.
He is an alumnus of the United Nations University, Tokyo, National Institute of Defense Studies, Tokyo and the University of Madras, Chennai, from where he secured first-class MSc and MPhil Degrees. He has also been a Visiting Fellow at the United Services Institution, New Delhi and at the Japan Institute of International Affairs, Tokyo. He has extensively worked on maritime issues.
Post retirement he served as Vice President Operations, NOVA Integrated Systems, a TATA Enterprise and was responsible for Operations, Business Development, Projects in EW, Missiles, UAVs, Radars and Electro-Optics.
Later as, as Director and CEO of ShinMaywa Industries India Private Limited, a wholly owned subsidiary of ShinMaywa Industries Ltd, Japan until 2015 he was responsible for the sale of US-2 Amphibian aircraft to the Navy and Coast Guard and industrial machinery to Indian customers.
He was Senior Consultant (Industry), NITI Aayog, Government of India, in charge of the policy verticals of the blue economy, circular economy, material recycling, civil aircraft program, shipbuilding and national aero and defence industry until January 2019. He was the Member Secretary of the NITI AAYOG Task Force on Drafting India's first comprehensive National Maritime Policy, India's first comprehensive and integrated National Material Recycling Policy, and India's First Automotive Recycling Policy under the MoRT&H, Govt of India, including recommendations for integrating the informal sector in recycling. He also wrote India's first paper on the Opportunities in Aircraft Recycling and a Systems Approach to Resource Efficiency.
Samaddar has published articles and chapter in books and addressed international conferences on various technology subjects including shipbuilding and has led industry discussions on the circular economy, waste management, recycling, blue economy and on AI and satellite-based technologies. He has also published papers and policy briefs on ship building and shipping.

He is presently associated with various think tanks and consultancy assignments such as:-
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