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Building India's Future Fleet: From Policy to Practice

TK Ramachandran, Sujeet Samaddar and Anushka Tripathi

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Executive Summary

India currently ranks only 16th in global shipbuilding, accounting for just 0.06 per cent of the commercial shipbuilding market, while paying approximately US$ 85 billion annually in freight charges to foreign shipping companies for its EXIM cargo. The national aspiration is to emerge as one of the world's top shipbuilding nations by 2047 and significantly increase the share of Indian cargo carried on Indian-built and Indian-owned ships. Achieving this vision is essential not only for economic growth but also for ensuring sovereign control over critical supply chains, energy security, mineral access, food security, and strategic maritime resilience.

Globally, shipbuilding is dominated by China, South Korea, and Japan, while emerging competitors such as Vietnam and the Philippines have demonstrated how focused policies and competitive production can rapidly build global market share. To replace the Philippines as the world's fourth-largest shipbuilding nation by 2047, India 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.

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Although India possesses world-class defence shipbuilding capabilities through its public sector shipyards, commercial shipbuilding remains fragmented, capacity constrained, and heavily dependent on imported marine equipment, propulsion systems, electronics, and specialised shipbuilding steel. These constraints increase costs, extend construction timelines, and reduce international competitiveness despite a supportive policy environment created by both the Central and State Governments.

The opportunity before India is unprecedented. Revised vessel age norms will generate a predictable domestic replacement market, with more than 631 ageing vessels already requiring replacement. Integrating ship recycling with shipbuilding through Tradeable Credit Notes (TCN) redeemable only at Indian shipyards can simultaneously promote sustainable shipbuilding, create assured domestic demand, and strengthen the circular economy. The planned expansion of coastal shipping under Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047 is equally significant, which seeks to double coastal shipping's modal share and substantially increase waterborne cargo movement. Meeting these targets alone will require a coastal fleet of nearly 19 million DWT, representing investments of approximately ₹2 lakh crore. Standardised vessel designs, modular construction, and common specifications can dramatically improve productivity and establish economies of scale, creating India's own transformational "Liberty Ship" moment.

India's rapidly expanding international trade presents an even larger opportunity. With only about 5 per cent of EXIM cargo presently carried on Indian ships, the projected growth of EXIM cargo reaching 6 - 10 billion MMT by 2047 will require thousands of bulk carriers, tankers, LNG carriers, container ships, and specialised automobile carriers. The potential domestic shipbuilding market is to serve India's own overseas trade alone exceeds INR 30 lakh crore, underpinned upon sufficient long-term demand to support globally competitive national shipbuilding capacity. Simultaneously, the expansion of inland waterways under the National Waterways Act is expected to create demand for approximately 70,000 barges, alternative-fuel barges, representing an additional

investment opportunity of nearly INR 3.5 lakh crore and enabling distributed, low-cost shipyard development across multiple regions.

To fully realize these opportunities, India must adopt an integrated shipbuilding approach that combines commercial and naval shipbuilding through civil-military fusion. Leveraging defence investments worth nearly INR 4 lakh crore over the next two decades can facilitate technology transfer, modular production, common platforms, common supply chains and stronger domestic industrial capabilities. Future competitiveness will also depend on embracing SMART shipbuilding through advanced digital design, artificial intelligence, robotics, predictive manufacturing, and integrated production management, while aligning vessel designs with emerging global demand for container ships, gas carriers, and alternative-fuel vessels powered by methanol, ammonia, hydrogen, and battery technologies. Greenfield shipyards built around low-carbon steel, energy efficiency, water positivity, digital manufacturing, and circular economy principles will further position India as a sustainable global shipbuilding hub.

Strengthening the wider ecosystem is equally important. India should leverage Global Capability Centres, academic-industry partnerships, international classification societies, and detailed ship design capabilities to establish integrated maritime clusters, standardised vessel specifications, and consortium-based modular construction. At the governance level, international experience demonstrates that successful shipbuilding nations rely on strong central coordination, assured long-term demand, and sustained investment support. Accordingly, India should implement a comprehensive 15-year National Shipbuilding Plan under the Coastal Shipping Act, 2025, supported by inter-ministerial coordination, demand aggregation for critical equipment, domestic manufacturing of key marine systems, and a clearly defined workshare strategy identifying which shipyards build specific vessel categories and within what timelines in pipeline production.

Shipbuilding is far more than an industrial activity. It is a strategic national capability with unmatched economic multipliers

across manufacturing, employment, exports, technology, and national security. India has already enunciated a clear maritime vision, introduced enabling policy reforms, and created the foundation for a globally competitive shipbuilding industry. The next phase requires coordinated implementation that converts policy into practice through long-term planning, capacity creation, ecosystem development, and sustained investment. By systematically building India's future fleet, the nation can achieve maritime self-reliance, reduce dependence on foreign shipping, create millions of skilled jobs, and emerge as a leading global maritime power by 2047.

This discussion paper examines the global and Indian shipbuilding landscape, analyses the opportunities and challenges facing the sector, and proposes a set of strategic initiatives for the successful development and sustained growth of India's national shipbuilding industry. It seeks to leverage the recently promulgated policies, reforms, and schemes of the Government of India to translate policy into practice and build India's future mercantile fleet in a coordinated, time-bound, and globally competitive manner.

Building India's Future Fleet: From Policy to Practice

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Abstract: Shipbuilding is a strategic industry that underpins global trade, economic integration, technological advancement, and maritime power. While leading shipbuilding nations leverage the sector for economic and geopolitical influence, India's contribution to the global market remains limited despite its vast coastline and maritime potential. India has recognised this lacunae and introduced a number of policy initiatives and new schemes both at the center and the state level to meet the aspiration of being amongst the top 5 shipbuilding nations by 2047. This paper analyses global and Indian shipbuilding trends and proposes a pathway to convert policy to practice to holistically strengthen India's shipbuilding ecosystem, enhance competitiveness, and support the development of an Indian Built national shipping fleet.

Keywords: Shipbuilding; Coastal Shipping; EXIM Trade; Shipyards; Green Shipping; Maritime India Vision 2030; Maritime Amrit Kaal Vision 2047; Viksit Bharat 2047.

Introduction

Shipbuilding occupies a central position in the global economic system, serving not only as the upstream foundation of maritime trade but also as a downstream driver of economic integration, technological advancement, and strategic influence. The shipbuilding industry plays a vital role in enabling global trade by constructing the vessels that transport minerals, energy resources, manufactured products, and essential commodities across international markets. As the backbone of maritime commerce and global supply chains, shipbuilding has grown beyond a conventional industrial sector to become a strategic industry that embodies a nation's technological prowess, industrial capabilities, economic strength, and geopolitical standing.

The ability of a nation to design, construct, and market ships at scale transforms shipbuilding into a source of strategic and economic leverage. Countries with robust shipbuilding capabilities are better positioned

to secure their trade interests, strengthen maritime security, reduce dependence on foreign-built fleets, and exercise greater influence over global shipping networks and supply chains. As global trade volumes continue to expand, shipbuilding has increasingly become a marker of industrial prowess and maritime power.

Within this broader global context, India's shipbuilding industry is emerging as a critical component of the country's aspirations for economic growth, industrial development, strategic autonomy, and maritime leadership. The sector contributes significantly to employment generation, exports, defence preparedness, and overall economic resilience. Historically, India's shipbuilding industry has remained largely concentrated in naval and defence-oriented production, maintaining only a marginal presence in the global commercial shipbuilding market. Despite possessing a long coastline of 11,098.81 kilometers, strategic maritime locations, and growing domestic demand, India currently accounts for 0.06 per cent of the global shipbuilding market[1].

This paper examines the global and Indian shipbuilding scenarios, and proposes a set of initiatives for the successful development and enduring growth of the national shipbuilding industry taking advantage of the recently promulgated policies and schemes of the Government of India to build India's future fleet.

Strategic Relevance of Shipbuilding

The industry constitutes a highly complex industrial ecosystem that supports a broad range of upstream and downstream sectors, including steel production, advanced materials, fabricated metal products, marine engineering, propulsion systems, electronics, digital design engineering, software systems, logistics, ship repair and maintenance services.

A widely cited study by the United States Maritime Administration (MARAD)[2] highlights the strong economic impact of the sector, noting that every one dollar of direct shipbuilding activity generates approximately 3.4 dollars in total economic output, a significantly higher

multiplier effect than many other major industries. Similarly, every 100 shipyard jobs support nearly 360-370 additional jobs across the broader economy, reflecting the sector's dependence on high-skilled and high-wage employment.

Shipbuilding is also deeply integrated into global value chains and characterized by a high degree of industrial interdependence. As noted in an Organisation for Economic Co-operation and Development (OECD)[3] study on global value chains and the shipbuilding industry, shipyards primarily function as system integrators, with selected vendors supplying steel, machinery and equipment. In major shipbuilding economies, direct value addition by shipyards accounts for only 20 to 30 per cent of total shipbuilding output value, whereas approximately 70 to 80 per cent derives from intermediate inputs sourced from industries such as iron and steel, feeder shipyards, marine machinery, electronics, cabling, pumping, plumbing and ducting, and fabricated metal products. Consequently, a substantial share of shipbuilding expenditure flows into diverse upstream industries requiring extensive subcontracting, skillful procurement, advanced engineering capabilities, and specialized technical expertise. This interconnected structure generates strong consumption multipliers and distributes economic benefits across a wide dual-purpose industrial base as shown in Table 1 and as illustrated in Figure 1.

Table 1: Value share in Production in Ships

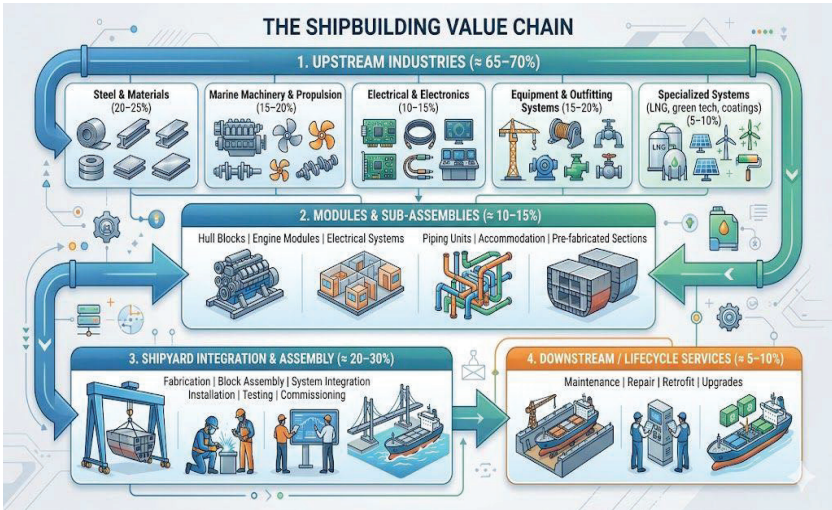
Segment	**Description**	**Share of Total Ship Value (%)**
Hull & Structure (Steel)	Ship structure, plates, fabrication and basic construction	20 - 25
Machinery & Propulsion Systems	Main engine, propulsion, shafting and auxiliary engines	15 - 20
Electrical & Electronic Systems	Navigation, communication, sensors and automation, control systems	10 - 15

Outfitting & Equipment	Pumps, piping, HVAC, deck machinery, safety systems and accommodation	15 - 20
Design, Engineering & Integration	Naval architecture, system integration and project management	5 - 10
Shipyard Labour & Overheads	Assembly, welding, yard operations and overhead costs	10 - 15
Other Systems	LNG containment, advanced materials and green tech systems (varies by vessel)	5 - 10

Given its capital-intensive nature, shipbuilding requires advanced technological capabilities, a highly skilled workforce, substantial financial investment, and robust policy support. Its strategic relevance can be understood across multiple dimensions. First, the industry promotes horizontal industrial deepening through the development of ancillary industries, thereby enhancing participation in global supply chains and attracting Foreign Direct Investment (FDI). Second, investments in labour skilling and technological capability development contribute to high-value employment generation and strengthen long-term economic resilience. Third, a strong domestic shipbuilding sector helps improve the trade balance by reducing dependence on foreign-built vessels while strengthening indigenous shipping capacity in a sector that remains critical to external trade. Fourth, shipbuilding is intrinsically linked to defence preparedness and maritime security because of the dual-use nature of shipbuilding infrastructure and the growing strategic importance of naval capabilities in global affairs. Fifth, the development of a strong domestic shipbuilding industry can lower logistics costs, reduce congestion on road and rail transport networks, and support the deployment of advanced technology vessels required for deep-sea mineral and hydrocarbon exploration, thereby contributing to energy security. Finally, the sector aligns closely with the broader vision of the Blue Economy by supporting the sustainable utilization of ocean resources for economic growth, improved livelihoods, and ecological sustainability.

Figure 1: Shipbuilding Value Chain

(Generated using Gemini)



Global Shipbuilding: Markets and Players

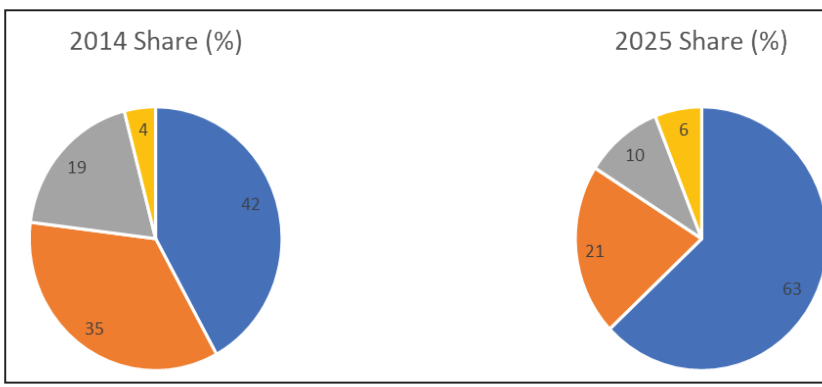
The Global Shipbuilding Market was valued at USD 157.21 billion in 2025 and is estimated to grow from USD 164.47 billion in 2026 to reach USD 206.24 billion by 2031, at a CAGR of 4.62 per cent during this forecast period (2026-2031)[4]. This expansion is being driven by several structural factors, such as decarbonization mandates from the International Maritime Organisation (IMO), the replacement of older vessels with more fuel-efficient ships, and sustained growth in global seaborne trade[5]. Shipbuilding is a capital-intensive industry with long production cycles and strong exposure to global trade fluctuations. It is heavily shaped by government support through financing, industrial policy and export incentives, given its sensitivity to costs and working capital[6].

Clarksons projects that global shipbuilding output in 2025, measured in Deadweight Tonnage (DWT), will be roughly 40 per cent higher than the trough recorded in 2020 during the COVID-19 downturn[7]. According to Clarkson data released on January 7, 2026, global new ship orders for

2025 totaled 2,036 vessels at 56.43 million Compensated Gross Tonnage (CGT), 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 totaling 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[8]. Going forward, China is expected to drop to a share of about 52 per cent of global shipbuilding output, while South Korea will contribute approximately 27 to 28 per cent, and Japan around 12 to 13 per cent[9].

The Asia-Pacific region therefore, dominates the sector, led by China, South Korea, and Japan, which benefit from advanced technology and integrated supply chains. Together, these three countries control about 95 per cent of global shipbuilding production capacity. Major players such as China State Shipbuilding Corporation, Hanwha Ocean, Mitsubishi Heavy Industries, Samsung Heavy Industries and HD Hyundai Heavy Industries drive global production and innovation.

Figure 2: Share of Global Shipbuilding



As shown in Figure 2, between 2014 and 2025, global shipbuilding shifted from a balanced three-way competition to a China-dominated industry. In 2014, China and South Korea were closely matched, with Japan a strong third player. By 2025, China cornered 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.

The “Others” category remains small, reflecting high entry barriers and strong industry concentration. Among the emerging players, 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 complex vessels. However, output has declined since its 2014-15 peak as most of its shipyards need upgrades, reliance on imported components raises costs and 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[10].

Vietnam, by contrast, is increasingly recognized for its favourable quality-to-cost ratio, supported 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 (CEU) carriers, 3000 TEU container ships, etc. and is gradually asserting itself in the international market in the low cost small ship transportation segment[11].

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

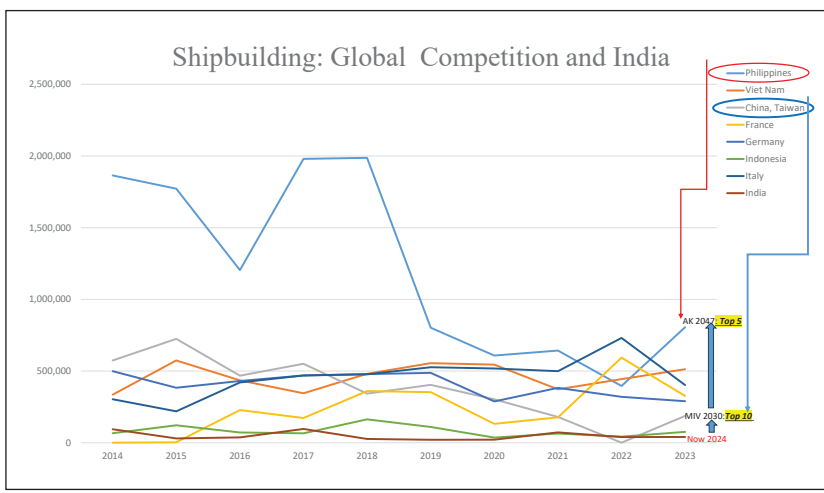
Since, global shipbuilding competitiveness comes from aligning scale, technology, policy support and market focus, for India, the goal should be to combine elements of China’s scale, Korea’s technological specialization, Japan’s efficiency, and the cost advantages of countries like Vietnam and the Philippines, while building a strong domestic Atma Nirbhar ship building ecosystem that reduces supply chain risks. No country dominates all vessel types. Hence, creating a segmented market where India 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 can build competitiveness, strengthen self-reliance, and expand its presence in global shipbuilding exports.

India's Shipbuilding Sector (2021-2025): Capacity and Capability

Despite having 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[12] as shown in Figure 3 below. Against this situation, the Maritime India Vision (MIV30) and the Maritime Amrit Kaal 2047(MAKV47) aspiration requires India to be amongst the top shipbuilding nations by 2030 and climb to top five by 2047 as depicted in Figure 3.

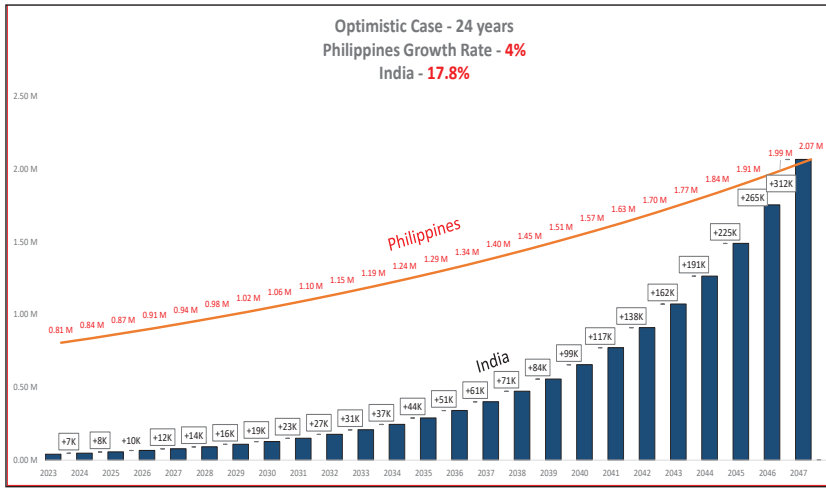
Figure 3: Major Shipbuilding Nations and Ranking Trends



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 Philippines continues to grow at the global CAGR of 4.4 per cent,[13] 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 only one per cent of global shipbuilding.

The required Compound Annual Growth Rates (CAGR) to emerge as one of the world's top five shipbuilding nations by 2047, as shown in Figure 4, is upward of 18 per cent CAGR. This illustrates the scale of industrial expansion necessary for India to bridge the gap between its maritime trade presence and maritime manufacturing capability. Achieving this objective, however, requires overcoming substantial structural, financial, technological, and infrastructural challenges while competing with established shipbuilding powers such as China, South Korea, and Japan, which currently dominate the global shipbuilding market through large-scale industrial ecosystems, technological sophistication and state-backed policy support. India's success in this domain will, therefore, depend on the formulation of a coherent long-term strategy that integrates industrial policy, infrastructure development, financial incentives, technological innovation, skill development and global value chain integration to transform the country into a globally competitive shipbuilding hub. Consequently, India's shipbuilding ambitions should be understood not merely as industrial policy targets, but as part of a broader strategic effort to align maritime trade dependence with indigenous industrial capacity and maritime economic power.

Figure 4: CAGR Requirements to Meet MAKV47 Targets



Over the years, India's public and private shipyards have expanded beyond defence projects and forayed into building merchant and offshore vessels, albeit small but meeting European expectations. With policy support, better infrastructure, and technology partnerships, they are increasingly attracting domestic and global clients.

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. 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.

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. 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[14]. Mazagon Dock Shipbuilders Ltd (MDL) maintains specialised submarine assembly lines and heavy-lift Goliath cranes for modular warship construction[15]. Garden Reach Shipbuilders & Engineers (GRSE) operates multiple building berths that allow parallel construction of frigates and corvettes[16], while Hindustan Shipyard Ltd[17] (HSL) and Goa Shipyard Ltd (GSL) provide medium-scale dock and repair infrastructure[18]. A summary of the capabilities of Public Sector Shipyards is shown in Appendix A.

In contrast, the private sector is characterised by larger but underutilised facilities. The shipyard at Pipavav, now operated by Swan Defence and Heavy Industries[19] (SDHI), possesses India's largest dry dock (approximately 662 metres in length) and can theoretically build vessels up to 400,000 DWT. Similarly, Larsen & Toubro's Kattupalli yard[20] incorporates a modern shiplift system with a capacity of around 20,000 tonnes, alongside modular fabrication facilities comparable to international standards. 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. A summary of infrastructure of the leading Private sector Shipyards is placed at Appendix B.

Despite this infrastructure, capacity utilisation in the private sector remains low due to the lack of sustained commercial order flows. Nearly all shipyards operate below their installed capacity, limiting economies of scale and affecting financial viability. This underutilisation reflects broader structural challenges, including limited domestic demand, intense international competition, constrained access to long-term financing and the absence of a stable pipeline of export orders.

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. 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) missile and anti-submarine corvettes and fast patrol craft. Public sector shipyards have also begun to diversify into commercial segments. CSL, for instance, has secured orders for LNG-powered feeder container vessels and harbour tugs, indicating a gradual expansion beyond defence[21].

Private shipyards, have traditionally excelled in commercial and offshore segments, including bulk carriers, Offshore Supply Vessels (OSVs), dredgers, tugs and harbour 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 fabrication, while also participating in modular construction for naval programmes.

Order Books and Delivery Trends (2021-2025)

The most notable development in Indian shipbuilding during this period is the sharp expansion in order books, driven largely by defence procurement. In aggregate, more than 60 vessels are currently under construction across Indian shipyards, underscoring a robust pipeline.[22] Also, delivery performance has improved, though unevenly. However, delivery timelines remain longer than global benchmarks, indicating persistent inefficiencies in project execution primarily due to sourcing constraints of key machinery, equipment and propulsion systems. A summary of the order books of selected shipyards is placed at *Appendix C*.

The Appendix C 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 and Shoft 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, the shipyards illustrate a full-spectrum ecosystem in that (a) Shoft and Chowgule anchor the small-vessel segment with steady, repeat exports (b) GRSE is moving into mid-sized cargo vessels and specialised platforms (c) 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 South Korea in building technological skills, global 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. As per present orders spanning the near term (2026-2030), exports will be anchored by multipurpose vessels delivered by GRSE to European buyers, chemical tankers under construction at SDHI for Norwegian operators and small container ships and bulkers being built by CSL, Shoft and Chowgule for global liners such as CMA CGM[23].

Greenfield Shipyards

India's shipbuilding landscape is now entering a decisive phase that is shaped by the emergence of HD Hyundai as the anchor foreign entrant. Unlike the earlier collaborations, Hyundai's approach signals

a full-spectrum industrial commitment combining a proposed $4 billion greenfield shipyard with parallel technology and infrastructure partnerships involving CSL and BEML[24]. This is not a single-project engagement but an entire shipbuilding ecosystem spanning design, fabrication, and heavy engineering. In contrast, Japanese participation remains more exploratory and cautious. Firms such as Imabari Shipbuilding are engaged primarily at the level of state-led discussions, particularly like Andhra Pradesh, with a focus on long-term ecosystem development rather than immediate capital deployment. Their interest spans greenfield shipyards, workforce development, and research collaboration, but concrete investment commitments have yet to materialise.

This divergence underscores two distinct models of engagement, a faster, capital-intensive Korean approach versus a slower, consortium-driven Japanese 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 capabilities pointing toward a triangular framework that could define India's future shipbuilding strategy.

A major structural shift in global shipbuilding is now emerging where foreign yards which earlier merely supplied designs or executed contracts, to a business model where production itself is being reallocated to India. India's shipyards are increasingly positioning themselves as a alternate destination, offering a combination of cost advantages and strategic hedging against overdependence on China.

Structural Strengths and Weaknesses

India's shipbuilding sector exhibits several structural strengths. First, the assured demand from defence procurement provides long-term visibility to public sector shipyards. Second, the country has developed significant design and engineering expertise in building complex naval platforms. Third, the presence of large private-sector infrastructure offers the potential for rapid scaling, particularly in commercial shipbuilding.

However, these strengths are offset by some weaknesses. Productivity levels continue to remain lower than global benchmarks. resulting in longer build periods and higher costs. The sector also suffers from fragmentation of capacity that prevents economies of scale. Export performance is limited, particularly in large commercial vessels, where Indian shipyards have yet to establish a strong global presence. Financial instability within the private sector has further constrained capacity utilisation, despite the availability of world-class infrastructure. Moreover, the dependence of public shipyards on defence orders reduces incentives for diversification and efficiency improvements.

A major weakness is the lack of national capability to build marine engines, complex steering systems and power trains with controllable pitch propellers etc resulting in import dependence on few suppliers. The second major lacunae is the non-availability of ship building steel which has markedly different properties from structural steel as Table 2 below depicts.

Table 2: Shipbuilding Steel and Structural steel

Property	**Ordinary Structural Steel**	**Shipbuilding Steel**
Yield Strength	250 - 350 MPa	235 - 690 MPa (depending on grade)
Impact Toughness	Moderate	High toughness especially, in cold conditions
Weld-ability	Good	Excellent designed for extensive welding
Fatigue Resistance	Standard	Good resistance to repeated wave loading
Corrosion Resistance	Limited	Alloyed or coated for marine environments
Certification	General industrial standards	Must meet classification society standards

Governmental Initiatives: Advancing Indian Shipbuilding

The Indian shipbuilding industry is a strategic pillar of national development, possessing a high employment multiplier capable of stimulating growth across extensive secondary and tertiary sectors. To transition India into a global shipbuilding destination and a maritime powerhouse, the Central and State governments have announced targeted policy interventions, fiscal and regulatory reform as designed to dismantle systemic barriers, specifically addressing high financing costs, stagnant domestic demand and existing technological gaps to develop a more competitive ecosystem to bolster the national economy and secure India's position as a leader in the sector. There have been many recent initiatives and policies implemented by the government aimed at strengthening the industry and improving economic resilience.

Central Government Initiatives

The Government of India has introduced a comprehensive policy framework to strengthen the domestic shipbuilding industry and position India as a globally competitive maritime manufacturing hub. Shipbuilding has been clearly recognized as the "mother of heavy engineering" due to its strong multiplier effects across the economy. 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. A summary of the recent initiatives of the Central Government is placed in *Appendix D.*

Recent policy initiatives of the Central Government can be conceptualized as a three - pillared approach towards revitalizing Indian Shipbuilding. This integrated policy architecture for *Atmanirbhar Poth Nirman* (self-reliant shipbuilding), emphasizing a coordinated, whole-of-government approach rather than fragmented policy making is grounded on three strategic pillars namely, *Swadeshi Punji* (domestic capital), *Atmanirbhar Vanijya* (self-reliant commerce), and *Niji Nauparivahan* (domestic maritime transport) which is operationalised through three critical pillars as mentioned below.

Credit: Institutional Finance as Strategic Investment. Shipbuilding requires long-term, low-cost institutional credit due to its capital intensity and long gestation period between order and delivery. The credit mechanism must prioritize financing across shipyard infrastructure, early-stage operational support for greenfield shipyards, repair yard upgrades and ship recycling for metal recovery relevant to shipbuilding applications. To accelerate this development, the government announced a slew of financial incentives:

- The INR 69,725 crore shipbuilding and maritime reform package in September 2025, aimed at strengthening financing mechanisms, infrastructure development, demand generation, and regulatory reforms across the maritime ecosystem. A key component of this framework is the Shipbuilding Financial Assistance Scheme (SBFAS) with a total outlay of INR 24,736 crore, designed to address cost disadvantages faced by Indian shipyards in the global market. Under the scheme, financial assistance is provided based on vessel value, including 15 per cent assistance for vessels valued below INR 100 crore, 20 per cent assistance for vessels above INR 100 crore, and 25 per cent assistance for green, hybrid, or specialized vessels. Shipyards must, however, achieve a minimum domestic value addition of 30 per cent to qualify for incentives. The scheme also incorporates a Ship-breaking Credit Note mechanism, under which ship owners receive credit notes equal to 40 per cent of the scrap value of vessels scrapped at Indian recycling yards. These credit notes can be redeemed against the cost of constructing new vessels at Indian shipyards and are transferable, stackable, and valid for three years. Of the total allocation, INR 20,554 crore is dedicated to financial assistance, while INR 4,001 crore is earmarked for ship-breaking incentives, with the scheme remaining valid until March 2036.
- To address financing constraints in the maritime sector, the government has also established the Maritime Development Fund (MDF) with a corpus of INR 25,000 crore. The MDF includes a INR 20,000 crore Maritime Investment Fund, structured as a blended finance mechanism with 49 per cent government participation and

51 per cent commercial capital from financial institutions, sovereign funds, and port authorities. In addition, an Interest Incentivization Fund of INR 5,000 crore will provide interest subsidies of up to 3 per cent on loans extended to Indian shipyards, improving the financial viability of shipbuilding projects. The fund will operate for a 10-year period until March 2036, supporting shipyard expansion, vessel acquisition, maritime infrastructure, and coastal and inland shipping development.

- Infrastructure development is further supported through the Shipbuilding Development Scheme (SbDS) with a total outlay of INR 19,989 crore, which focuses on building integrated shipbuilding clusters and expanding existing shipyard capacity. The scheme allocates INR 9,930 crore for greenfield shipbuilding clusters, INR 8,261 crore for brownfield expansion of existing shipyards, INR 1,443 crore for shipbuilding risk coverage, and INR 305 crore for capability development, including technology adoption, training, and institutional strengthening. The scheme is planned for a 10-year implementation period, that is up to March 2036, and aims to develop integrated clusters that brings together shipyards, research institutions, MSMEs to generate green technology solutions for the sector.
- The government has also introduced demand-side policy measures to promote domestic shipbuilding. The Right of First Refusal (RoFR) policy gives priority to Indian shipyards in government procurement of vessels, with preference for Indian-built, Indian-flagged, and Indian-owned ships. Additionally, the Public Procurement (Preference to Make in India) Order, 2017 mandates that ships valued below INR 200 crore must be procured from Indian shipyards, thereby ensuring a stable pipeline of domestic orders. Combining financial incentives with structural reforms like the Right of First Refusal (ROFR) for Indian-built ships in government tenders, ensures a steady pipeline of work for domestic yards.
- Several initiatives have also been introduced to promote sustainable and standardized shipbuilding. In line with global decarbonization

goals, the Indian government has recently pivoted toward "Green Shipping" through its Green Tug Transition Programme (GTTP), which encourages the adoption of eco-friendly tugboats at major ports, and the *Harit Nauka Guidelines*[25], which promote environmentally sustainable technologies in inland waterway vessels. The Green Tug Transition Programme (GTTP)[26] aims to induct green-energy-powered tugs and work boats, providing a direct demand boost to domestic shipyards specialized in sustainable technology. The government has also introduced five standardized tug designs for major ports to improve efficiency, reduce costs, and support domestic shipyards. Initiatives like the National Green Hydrogen Mission are being integrated into the maritime sector to promote the building of hydrogen and methanol-powered catamarans and electric vessels.

Cargo: Assured Demand as the Foundation. Sustainable shipbuilding depends on predictable revenue streams. The policy could prioritize assured cargo through long-term agreements between public sector entities and Indian shipping firms, mandatory use of Indian-flagged vessels for key commodities and the potential creation of a national shipping line to anchor EXIM and coastal cargo demand. Both the MIV2030 and MAKV47 are explicit on the cargo requirements to support a modal share of 12 per cent thorough the waterborne transportation network.

Cabotage: Protecting Domestic Shipping. Stronger cabotage enforcement that limits foreign participation in domestic coastal trade, ensuring demand for Indian shipping companies and supporting domestic shipbuilding growth is key strategic priority of the Government of India. In line with this policy the DG Shipping General Orders No. 1 of 2018 dated 21 May 2018, No. 2 of 2018 dated 22 May 2018, and No. 3 of 2018 dated 22 June 2018, which were intended to facilitate the coastal movement of EXIM transshipment containers, empty containers, agricultural and horticultural products, and fertilizers on foreign flag vessels became an obstacle to the growth of domestic shipping. Even after 8 years of its promulgation DG Shipping has stated 'transshipment of lndian containerized cargo through foreign ports has not decreased,

lndian container fleet has stagnated and lndian trade remains heavily reliant on foreign flag vessels'. Consequently, the DG Shipping has rescinded these orders vide General 01/2026 dated 21 Jan 2026. But, given the "operational concerns arising out of the prevailing geopolitical situation", the extension of timeline for implementation of General Order No. 1 of 2026 dated 21.01.2026 has been extended by a further period of six (06) months.

State Government Initiatives

State governments, particularly coastal states, also play a crucial role by providing land, utility subsidies and localised policy support. States often align their policies with Central Government's projects 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 in *Appendix E.*

Therefore these 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 most proactive, positioning Thoothukudi as a global shipbuilding hub through targeted incentives, land aggregation, and port-led industrialisation, 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 continues to leverage its existing maritime ecosystem, particularly around Pipavav and Dahej, through policy support for ship recycling, repair, and newbuilding clusters. Meanwhile, Maharashtra is focusing on smaller shipbuilding, repair, and coastal vessel ecosystems linked to Sagarmala and inland waterways. These state-led initiatives signal a shift toward cluster-based shipbuilding development, aligning infrastructure, policy incentives, and global partnerships in a geographically distributed but strategically coordinated manner. A summary of new projects is shown in Appendix F. Geographically, the developments shown in *Appendix*

F are converging into a cluster-based approach aligned with national policy objectives.

Given the above generous financing schemes, clear policy directives and committed encouragement to build the Indian Shipbuilding industry it is time for all stakeholders to act. There is a need to translate this policy into a strategic pathway so that the low hanging fruits can be targeted first and a 'whole of nation' synergized, harmonized and coordinated shipbuilding eco-system can be created.

The subsequent sections recommend some of the actionable strategic initiatives that can implement the policy objectives and propel India to be amongst the shipbuilding giants of the world.

Implementing the Policy: Proposed Strategic Initiatives

Initiative 1: Target the 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[27]. The scale of the replacement opportunity is significant. In 2024 alone, 631 ships of the Indian mercantile fleet representing approximately 6 million DWT were built more than 25 years ago as shown in Table 4, 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 in Table 3. Internationally, a large proportion of the fleet, particularly in general cargo, bulk carrier and older tanker segments, is now over 15-20 years old[28]. The implementation of IMO regulations for Net Zero Shipping, coupled with impending fuel-transition requirements, has incentivised a prolonged, regulation-driven modernisation phase of the world fleet.

Table 3: Age Profile of World Fleet (in Years)

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

Source: Review of Maritime Transport 2024.

Demand for alternative fueled ships is also increasing[29] which is not merely a process of replacing old ships with 'like-for-like' capacity, but rather a structural upgrading of the global fleet towards larger, more efficient, technologically advanced and environmentally compliant fleet. For India, this transition could help Indian shipyards, particularly greenfield shipyards, to induct technologies and systems for future ready 'new build' ships.

To leverage this replacement opportunity into shipbuilding orders designating vessels older than 25 years as 'end-of-life vessels' to mitigate safety risks, reduce emissions, lower effluents and contain pollution[30] has been announced by the DG Shipping in their General order DGS Order No. 01 of 2026[31]. By integrating this policy with 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. India can create a self-sustaining demand pipeline for sustainable shipbuilding and simultaneously promote circularity in shipbuilding. In line with this policy, Government of India has issued the first ship recycling credit note[32] to Bella Shipping for scrapping a Capesize bulk carrier, for INR 29.81 crore, valid until May 2029.

Initiative # 2: Build the Coastal Fleet

Water transport provides a clear operational advantage over other modes in terms of efficiency, fuel consumption and cost. The comparative

Table 4: Fleet Profile of vessels > 25 years old

Fleet Profile of 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**	**14,402**	**129**	**54,975**	**631**	**6,008,728**

Source: Author's compilation from "Tonnage Statement" issued by DG Shipping.

efficiency of waterways relative to rail and road transport is illustrated below Table 5.

Table 5: Efficiency of waterways relative to rail and road transport

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 utilization of coastal shipping in India remains relatively low at about 6 - 6.4 per cent[33]. MIV 2030 sets out explicit goals to enhance the modal share of coastal shipping and inland waterways. Looking further ahead, MAKV 2047 sets a target of about 1,300 MTPA with a modal share of 12 per cent[34] for water borne logistics.

The Coastal Shipping Act, 2025 can serve as powerful catalyst for Indian shipbuilding by creating a protected and predictable domestic market for Indian-owned vessels. Whilst the Act does not directly mandate domestic construction, but by increasing demand for Indian-flagged vessels it creates the market conditions necessary for a viable indigenous shipbuilding industry, especially when combined with the Shipbuilding Financial Assistance Scheme and infrastructure for shipyards. The Act's stated objective is to ensure that India possesses a coastal fleet "owned and operated by the citizens of India" for national security and commercial needs. By restricting coasting trade primarily to Indian vessels and requiring foreign vessels to obtain licences, the Act effectively strengthens cabotage protections and increases demand for Indian-flagged tonnage. As coastal cargo volumes grow, shipowners will have greater incentives to acquire vessels from Indian shipyards to register under the Indian flag, creating sustained demand for domestically built coastal cargo ships, feeder container vessels, tankers, Ro-Ro ferries and inland-coastal hybrid vessels. This market certainty can encourage

investment in Indian shipyards, support ancillary industries and improve economies of scale in shipbuilding.

When combined with the commodity profile of coastal cargo an indication of the type and number of ships needed for coastal cargo can be determined. It is seen that coastal cargo is strongly skewed towards bulk and liquid bulk cargoes, reflecting the inherent suitability of coastal shipping for high-volume, low-value and long-haul movements. As per a Report,[35]."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 accounted 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 undertakings (PSUs), government agencies, and cooperatives shift 10 per cent of their monthly cargo, such as food grains, coal, fertilisers, and other bulk commodities to coastal shipping and inland waterways.

Based on cargo projections[36] and assuming vessels with appropriate DWT as shown in *Appendix G* to cater for existing shipyards capability and navigation limitations in minor ports the demand for bulk carriers, product tankers and container ships has been estimated at 341 bulkers, 182 container carriers and 278 product tankers.

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 to their coastal fleet 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 production of marine engines, steering gear, radars etc.

Initiative # 3: EXIM Cargoes and the Overseas Fleet

Only about 5 per cent of India's external (EXIM) trade is carried by Indian ships. For FY 2025-26, India's total EXIM cargo handled at ports was 915 million metric tonnes (MMT)[37]. Given that over 95 percent of India's EXIM trade, by volume, is carried by foreign shipping lines, at an estimated freight cost of about US $ 85 billion (2023), this cargo base can be converted into fleet requirements using standard assumptions on vessel size, utilisation rates, 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 containerised cargo streams, each mapped to representative vessel classes prevalent in global shipping markets. The extant requirement is as shown in Table 6.

Table 6: Estimated Vessel Requirement for 915 MMT Trade Volume

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	170k m^3	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 offs and repairs at even 10 per cent the requirement rises to about 800 ships reflecting the minimum 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

Table 7: Shipping requirement for a 6 billion MMT EXIM Cargo

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

Source: Author's compilation as per prevailing market prices.

TEU[38]. The shipping requirement for a 6 billion MMT shipment, assuming the same cargo segmentation, would potentially grow to levels as shown in Table 7, which, at 2026 prices, is worth US $313 billion.

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

An illustrative example from the automobile export sector reinforces this point. As per automotive export data[39], India's automobile exports, in 2024, were as shown in Table 8.

Table 8: India's automobile exports, (2024)

Numbers in 000'							
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

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), and the requirement can be quantified as follows:-

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.

Containerised Cargo. For the two/three wheeler segment assuming about 30 units and 15 units respectively per TEU would need about 180,000 TEUs or about twenty 10,000 TEU voyages deploying 10 such container ships.

In summary, the shipping requirement for India's automobile exports in 2024, are as shown in Table 9.

Table 9: Shipping requirement for automobile exports (2024)

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 in the Table 7 averages 19 per cent. Even with a very conservative 10 per cent CAGR until 2047 the export requirements for shipping the projected 7.6 million PVs/CVs and about 40 million 2W/3W, for the same shipping configuration would require 2000 voyages and 1.8 million TEUs respectively.

As India positions itself as a global automobile manufacturing and export hub, the demand for PCCs and Ro-Ro vessels becomes a tangible

near term opportunity for Indian shipyards to develop specialised capability.

Initiative # 4 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 serves remote and hinterland regions, enhancing logistical connectivity and reducing transport costs and are increasingly being integrated with coastal shipping. Therefore, India's inland waterways sector is undergoing a significant revival driven by the National Waterways Act, 2016, which expanded the network from 5 to 111 National Waterways covering more than 20,000 km across 23 states. As a result, cargo movement on inland waterways has increased almost ten-fold from (about 18 million tonnes in 2013-14 to over 180 million tonnes upto January 2026) making inland water transport one of India's fastest-growing logistics sectors. While the National Waterways Act, 2016 does not explicitly mandate green vessels, subsequent government policy has increasingly linked inland waterway development with decarbonisation objectives, including the deployment of electric, solar-powered, hydrogen-fueled and other low-emission barges and ferries.

As per a DG Shipping Report[40] "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 growth 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 predominantly Iron Ore, Steel, Coal, Cement, Clinker, Machinery (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[41].

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 approximately 2 to 5 per cent. Cargo volumes are projected to exceed 200 MMT by 2030 and potentially reach 500 MMT by 2047[42]. This implies a substantial expansion in inland vessel requirements, particularly in the categories of self-propelled barges, push boats, Ro-Ro 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, making 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 throughput 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 about 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 barges for the projected cargo of 500 MMT by 2047. This is estimated to be worth about INR 3,50,000 Crore.

These estimates highlight the scale implications of inland waterway expansion. Even allowing for higher-capacity vessels, convoy operations, or improved load factors, the order of magnitude remains significant. This reinforces the role of inland waterways as a major additional demand driver for domestic shipbuilding, particularly in standardized, shallow-draft vessel segments that can be built at scale across proximate riverine shipyards.

In this context, inland waterways complement the EXIM-driven demand for ocean-going vessels by providing an additional, domestically

anchored market for shipbuilding. Together, these segments create a multi-layered demand structure spanning deep-sea shipping, short sea shipping and inland transport, thereby strengthening the case for a comprehensive and self-sustaining maritime industrial ecosystem.

Initiative # 5: Civil-Military Fusion as India's Shipbuilding Doctrine

To accelerate technology infusion into the national shipbuilding program, India could adopt an innovative civil-military fusion initiative that constructively integrates commercial and naval shipbuilding pathways into one integrated, coordinated and harmonised national effort.

Two approaches are suggested. In the first approach, commercial vessels, particularly container ships and bulk carriers could be designed at 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 the construction of cargo and container vessels have latent capability for militarisation, including missile deployment and naval logistic support and surveillance functions. For India, a calibrated and transparent adaptation of this concept aligned with international norms could leverage its 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 competitiveness of Indian shipyards by embedding advanced design, modularity, and systems integration into commercial shipbuilding.

Warship construction competence is directly transferable to hi-tech commercial vessels. Each naval platform effectively serves as a technology incubator for civilian shipbuilding. In this second approach naval orders provide stability, technology depth, and assured demand, while commercial shipbuilding delivers scale and efficiency. A summary of the potential warship projects in the pipeline are shown in *Appendix H.*

Combining warship demand with mercantile shipping requires civil-military technology and skill fusion at its core. India's shipbuilding growth over the next decade can very well be anchored on its warship

building pipeline that provides cutting edge technology, assured demand, robust and proven suppliers contributing to long-term national shipbuilding industrial stability.

Initiative # 6: SMART Shipbuilding - Building the Right Future Ready Fleet

The sixth strategic initiative suggested is SMART (**S**ystems Design, **M**eta Materials, **A**rtificial Intelligence, **R**obotic Production and **T**echnology-driven) shipbuilding. These tools enable predictive design simulation, real-time production monitoring and improved coordination across complex shipyard processes. The adoption of meta-materials and hydrodynamic hull optimization can reduce drag improving vessel fuel efficiency. While precise performance gains vary across shipyards and project types, industry studies consistently indicate significant improvements in productivity, reduction in errors and rework, and enhanced operational efficiency through digitalisation and automation[43]. It is however important to first invest in capacities that are future proof to build right type of ships.

The world merchant fleet reached 2.44 billion DWT in 2025, representing a 3.4 per cent year-on-year growth, with bulk carriers and container vessels accounting for the largest shares. Table 10 highlights the composition of the global fleet by ship type and its growth trends.

Table 10: The composition of the global fleet by ship type and its growth trends

Ship Type	2024 ('000 DWT)	2025 ('000 DWT)	Change (per cent)	Share 2025 (per cent)
Bulk Carriers	1,006,329	1,036,158	3.0	42.5
Oil Tankers	665,472	669,842	0.7	27.5
Container Ships	331,567	363,759	9.7	14.9
Other Types	271,141	282,651	4.2	11.6
Offshore Supply	89,507	91,334	2.0	3.7
Liquefied Gas Carriers	93,907	100,462	7.0	4.1

Chemical Tankers	52,584	54,333	3.3	2.2
Other/ Unspecified	26,326	27,576	4.7	1.1
Ferries/ Passenger	8,818	8,947	1.5	0.4
General Cargo	85,809	87,421	1.9	3.6
World Total	2,360,319	2,439,832	3.4	100

The increasing demand for container shipping and gas carriers growing YoY at 9.7 per cent and 7.0 per cent respectively is illuminative of the trends in new build orders and highlights the need for hi-technology shipbuilding capacity.

Additionally, Table 11[44] identify the transition from building tankers to gas carriers in the future. This suggests the type of ships that Indian shipyards should build, given the declining trends of coal and crude cargoes vis-à-vis the projected increased demand for shipping cargoes of biogas, hydrogen, carbon capture and biofuels. This would shape national capacity to build the 'right ship' for future cargoes.

Table 11: Projected Global Energy Transition indicators (2022–2050)

Metric	**2022**	**2030**	**2050**
World GDP Growth (CAGR per cent)	3	2.5	–
Coal (Mtce)	5,800	3,250	500
Natural Gas (bcm)	4,150	3,400	900
Biogas (bcm)	28	195	417
Hydrogen (Mt)	0.6	70	420
Carbon Capture (CCUS Mt)	42	1,024	6,040
Oil (Mb/day)	100	77	24
Biofuels (Mt)	95	263	363

Further, the global maritime energy transition also necessitates a major shift in ship design and propulsion technologies. Alternative marine fuels will play a critical role in shaping vessel design and operational strategies. Each fuel option, as shown in Table 12, offers different trade-offs in terms of emissions, energy density, infrastructure readiness, and safety considerations. For identifying the specific power trains for new builds India must incentivise dual-fuel propulsion systems such as LNG or ammonia for at least 50 per cent of new build vessels.

Table 12: Emissions, Safety, and infrastructure trade-offs

Fuel	Lifecycle Emissions	Energy Density	Safety Risks	Infrastructure Readiness	Ideal Ship Types
LNG	Lower emissions, but methane leakage is a concern	High	Medium	High	Tankers and Bulk Carriers
Methanol	Lower than conventional fuel	Medium	High	Medium-High	Multi-purpose and Coastal vessels
Ammonia	No carbon emissions during use	Medium	Toxic	Medium	Long-haul bulk and gas carriers
Hydrogen	No carbon emissions during use	Low	Explosive	Low	Short-sea and feeders vessels
Electric	Zero direct emissions	Very Low	Battery risks	High	Ferries and Inland vessels
Biofuels	Carbon - neutral	High	Low	Medium	Existing ships with minimal modifications

Of the above options it is green methanol that is gaining traction due to its relatively mature handling requirements and growing availability. With roughly 350- 400 ships on order, it has moved beyond demonstration

and into mainstream fleet planning, particularly among major container operators such as Maersk and CMA CGM. DNV estimates roughly 450 methanol-capable vessels are either operating or on order[45]. There is therefore opportunity for Indian industry to engage with global majors to develop a methanol fuelled marine engine production capacity in India.

Green ammonia offers the potential for near-zero carbon emissions but requires new safety protocols and infrastructure. While only around 45-46 vessels are on order, ammonia is widely viewed as the leading candidate for long-haul deep-sea shipping because it contains no carbon. The challenge remains fuel availability, toxicity management and bunkering infrastructure. Amongst the world's foremost methanol engine manufacturer[46], noted 'Ammonia-fueled engines mark a new era in carbon-free marine propulsion. As maritime transport currently accounts for around 3 per cent of global greenhouse gas emissions, this new engine type offers a promising pathway to reduce the sector's climate impact'. WinGD, the worlds' leading alternate fuel engine manufacturer stated, 'it has reached a landmark moment in the development of zero-carbon marine fuels with the successful sea trials and delivery of ANTWERPEN as the world's first ocean-going ship designed to operate on ammonia fuel'[47].

Hydrogen, particularly when produced from renewable sources, presents another promising pathway, although storage and distribution challenges remain significant hurdles. While hydrogen receives significant global policy attention, only about 53 vessels are currently in the orderbook. Storage challenges, low volumetric energy density and limited bunkering infrastructure have restricted adoption largely to ferries and pilot projects.

Battery-electric vessels are already commercial but mainly for short routes. The global orderbook of roughly 200 vessels is concentrated in ferries, harbour craft and coastal shipping where frequent charging is feasible. CSL and GRSE have already built fully electric propulsion ferries for inland transportation but such propulsion systems for large ocean-going cargo ships is not feasible in the foreseeable future.

Green tugs are already being introduced in various ports. In addition, biofuels and hybrid-electric solutions may play important roles in specific vessel segments and regional trades. For India, the replacement market for Green Tugs is more than 160 tugs as was shown in Table 4 earlier. This is a tremendous market and offers a clear pathway for the Indian shipbuilding industry to achieve global competitiveness in a niche sector. With port expansion schemes, new offshore oil and gas discoveries and new shipyards the demand for Tugs would be sizeable. Indian shipyards are already building conventional 50-70 BPT tugs and are beginning to develop green tug variants supported by indigenous naval architects and domestic industry.

For India's coastal shipping network, methanol powered vessels are the most practical near-term option due to their relatively simple integration and compatibility with existing fuel infrastructure. Meanwhile, ammonia-powered vessels can be considered for vessels engaged in EXIM trade, electric or fuel cell and battery propulsion technologies could be considered for Tugs, OSVs etc.

Compliance with emerging international maritime regulations is another critical driver for SMART shipbuilding adoption. India must prepare for IMO[48] Energy Efficiency Existing Ship Index (EEXI) and the annual operational Carbon Intensity Indicator (CII) Phase 3 requirements, which mandate a 28 per cent reduction in greenhouse gas emissions by 2028, as well as compliance with Ballast Water Management Convention. A phased implementation roadmap should be prepared to enable a gradual transition while minimizing disruptions to shipowners and shipyards.

Hence, in summary the following pointers are important:-

- Methanol-ready vessels are the immediate commercial opportunity because demand already exists at scale (300+ ships on order globally). Indian yards could realistically target coastal vessels, feeders, inland-waterway vessels and medium-sized cargo ships in this segment.

- Ammonia-ready designs are the strategic future opportunity because most projections see ammonia becoming important for long-haul bulk and tanker trades after 2030.
- Battery-electric and hydrogen vessels are primarily coastal/inland-waterway opportunities, making them particularly relevant for India's National Waterways and coastal shipping programmes.

Autonomous shipping is emerging as one of the most transformative developments in the maritime sector, combining advanced sensors, artificial intelligence, machine learning, satellite communications, digital twins and remote operations to enable varying degrees of automated vessel navigation and management. Leveraging its strengths in information technology, artificial intelligence and digital services, India could position itself as a competitive hub for the design and construction of autonomous coastal vessels, inland waterway craft, harbour tugs and unmanned maritime systems. Integrating autonomous technologies into future shipbuilding programmes would not only enhance the competitiveness of Indian shipyards but also help establish a domestic maritime technology ecosystem aligned with the objectives of Maritime Amrit Kaal Vision 2047 and the broader goal of transforming India into a global maritime industrial and innovation centre. Future shipbuilding is likely to witness a shift in value creation from steel and fabrication towards software, systems integration, data analytics and intelligent vessel management areas where India possesses significant comparative advantages.

SMART shipbuilding also aligns closely with the United Nations Sustainable Development Goals (SDGs), enabling economic growth, environmental protection and technological innovation simultaneously. This is shown in Table 13.

Table 13: United Nations Sustainable Development Goals (SDGs) 14 Targets

SDG Goal	Key Interventions	Target by 2030
SDG 13 (Climate Action)	Alternative fuels, EEXI/ CII compliance, digital twins	50 per cent of fleet retrofitted
SDG 14 (Life Below Water)	Ballast water management and zero discharge policies	100 per cent compliance
SDG 8 (Decent Work)	AI and robotics training programs	20 per cent workforce upskilled
SDG 9 (Industry & Innovation)	Modular construction and smart shipyards	15 SMART shipyards operational
SDG 12 (Responsible Consumption)	Lifecycle material management and recycling	20 per cent reduction in industrial waste

Overall, this integrated policy framework combining digital technologies, sustainable propulsion systems and international partnerships, standardized vessel designs and SMART shipbuilding could be an important lever to unlock India's shipbuilding aspirations.

Initiative # 7: Green Ships from Greenfield Shipyards[49]

As brought out earlier, the maritime industry is undergoing a fundamental transformation as it embraces sustainability and decarbonization. Increasingly, attention is shifting beyond the vessel itself to the development of green shipyards infrastructure that are designed to minimize environmental impact throughout the entire shipbuilding process. The shipyards of the future are expected to integrate renewable energy, energy-efficient manufacturing systems, digital production technologies, waste minimization practices, and circular-economy principles. Given the international emphasis on sustainability, circular economy and low carbon production greenfield shipyards require to be incentivised through policy support by the state government to adopt renewable power, green materials, and environmentally responsible construction practices into new shipyards.

India's shipbuilding competitiveness depends heavily on input costs, supply chains, and financial support. For ship production, steel accounts for between 25 to 40 per cent of the build cost alone. However, Indian steel is not yet competitively priced and also does not match the specific requirements of shipbuilding steel. Hence, shipyards have to import steel, mostly from China. This adds to the cost disadvantage to the India shipyard. Given the aspirations of delivering about 2 - 2.5 million DWT of new builds in a year a mini steel plant that recycles steel from ship-breaking clusters to feed into domestic shipbuilding could be conceived reducing costs and improving price competitiveness of Indian shipyards.

Countries such as South Korea, Japan and China benefit from integrated steel-shipbuilding ecosystems, whereas India's emergence as a major shipbuilding nation will require parallel development of domestic marine-grade and low-carbon steel production capabilities. India currently imports significant quantities of specialized shipbuilding plate, especially higher-end grades, as these are not competitively priced in India and are largely imported. The use of green steel[50], produced through low-carbon manufacturing processes, can significantly reduce the embedded carbon footprint of new vessels, while advanced design tools enable more efficient hull forms and propulsion systems at the design stage itself. Developing domestic production of certified green marine steel could become a strategic advantage, particularly if linked to the country's shipbuilding expansion plans under MAKV 47. This presents an opportunity for Indian steel producers to become part of a national green maritime industrial strategy.

A truly sustainable maritime sector requires a holistic, lifecycle perspective which begins from the sourcing of materials, machinery and money to the construction of vessels and then to operations and eventual recycling at end of life. By combining green shipyards, low-carbon materials, innovative vessel designs, alternative fuels, and responsible end-of-life recycling the Indian shipbuilding industry can move closer to a resilient and environmentally responsible gold standard for sustainable shipbuilding.

Initiative # 8: Strengthening India's Shipbuilding Ecosystem

India can strengthen its shipbuilding ecosystem by leveraging its leadership in Global Capability Centres (GCCs). With over 1,700 GCCs, the country is well positioned to host maritime-focused centres for classification bodies like DNV, Lloyd's Register, and American Bureau of Shipping (ABC) in GIFT City. These centres could undertake high-value design and engineering tasks reducing certification and approval timelines and improving global confidence in Indian shipyards.

Cochin University of Science and Technology (CUSAT) and CSL have signed a Memorandum of Understanding (MoU) to establish a centre of excellence in sustainable shipbuilding technology aimed to bridge the gap between the shipbuilding industry and academia[51].

Industrial competitiveness also depends on outfitting, where most value addition occurs. Partnerships between shipyards, a recent example of which is between GRSE and HSL[52], can cut construction time and improve efficiency. On the manufacturing side, joint licensing agreements can help standardize machinery components and increase domestic value addition progressively and include the SME sector in the national shipbuilding effort. Shipbuilding clusters at Dugarajapatnam and Thoothukodi that house machinery. equipment, fabrication and outfitting industries feed into the upstream requirements of co-located shipyards thereby reducing logistic costs and providing standardised, qualified and certified products.

A critical insight from global shipbuilding best practice is the benefits of standardisation. By adopting a 'One Ship, One Specification' approach, where a single hull form and design specification is used for a class of vessels, Indian shipyards can dramatically reduce unit costs through reduced design and engineering overhead per cost vessel, reduced classification society and regulatory compliance costs per unit, generate economies of scale in materials procurement, create sustained and stabilised supply chains result and compress build cycles as workers accumulate vessel-specific skill sets.

Initiative # 9: Adopt International Best Practice for Governance of Shipbuilding

The UK National Shipbuilding Office (NSO)[53] represents a notable institutional innovation that brings together "multiple government stakeholders including defence, transport and trade departments to create a unified and predictable shipbuilding ecosystem". This provides industry with forward visibility, thereby reducing uncertainty, stabilizing order flows and enabling investment in infrastructure, skills, and technology.

Other models include the EU Industrial Maritime Strategy which is now being financed[54]. On similar lines President Donald J Trump, whilst releasing the USA Action Plan on Maritime Dominance, stated, "We will soon revitalize our once-great 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"[55].

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[56].

For India, adapting elements of the UK approach particularly centralized coordination, demand aggregation for engines and systems that go into shipbuilding and long-term pipeline visibility could help address structural inefficiencies, improve capacity utilization, and catalyze private sector participation for localizing production of such machinery and systems in India. This would reduce costs, improve maintainability and increase confidence in sourcing by Indian shipyards from Indian suppliers.

Initiative # 10: Draft the 15 year Shipbuilding Plan

Section 8 of the Coastal Shipping Act, 2025 requires the Central Government to prepare and publish a National Coastal and Inland

Shipping Strategic Plan[57] within two years of the commencement of the Act, and thereafter update it every two years. It specifically requires, "measures for the promotion of building, registration and participation of Indian vessels in coastal shipping in India". Since the Act came into force only in 2025, the Plan is still under preparation. To provide a long term outlook for investors and entrepreneurs India could provide a committed support to Indian shipyards based on four foundational principles which could be considered whilst preparing the plan.

No Silo-Based Approach. Shipping policy, shipbuilding policy, port policy, waterway policy and maritime finance policy must be coordinated under a single strategic architecture that cross cut across multiple ministries.

Not a Pure Economic Viability Model. Shipbuilding is a strategic necessity, not merely a commercial proposition. Its value to India encompasses technological capability development, employment generation, defence-industrial base strengthening, geopolitical influence, energy security, and supply chain resilience. A purely return-on-investment framework will consistently undervalue these externalities and under-invest in the sector.

Larger Technological, Social, Geopolitical, and Environmental Considerations. The plan must account for the energy transition, the emerging green economy regulatory landscape, India's climate commitments, its security interests in the Indo-Pacific, and its strategic interest in developing deep technical manufacturing capability as a foundational element of a 21st-century economy.

Consultative Process. A group of domain experts drawn from the shipbuilding sector should be formed to prepare such a document.

Approval. Since the Plan has financial and security implications the line Ministry could obtain the in principle approval of the Cabinet for the proposed shipbuilding plan. This must be operationalised through an empowered inter-ministerial coordination structure with a clear mandate and accountability.

Recent initiatives in the shipbuilding sector are focused on standardizing the design and specifications of short sea shipping vessels and fishing vessels, including bulk carriers, general cargo ships, container vessels, green tug boats, patrol vessels, and ships built in India. At the same time, strategic partnerships under the "Make in India" initiative aim to strengthen upstream equipment manufacturing through global competitive bidding to select foreign companies to build the machinery, equipment, systems and deck fittings in India. For this purpose it is proposed to aggregate the total demand across all the shipbuilding requirements to arrive at the total requirements. For example, marine engines can be conceived around a base line model of say a 500-750 KW propulsion plant and then configured as modules for larger ships. This would provide visibility to potential marine engine manufacturers of the scale size and scope of the India Marine engine opportunity - a vitally important but missing piece for Indian Shipbuilders. A similar aggregation exercise on navigation radars, which is not yet manufactured in India, can make the case for localizing a radar manufacturing facility in India.

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 focused on system integration sourcing the steel, material, machinery, and equipment from established vendors, steel fabrication, outfitting, testing, certification, commissioning and delivery to the end customer whilst standing guarantee for the entire ship.

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 per cent 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 (2025). Aspiring to be amongst the top 5 shipbuilding nations 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.

Now, India's shipbuilding sector is entering a transformative phase in which global maritime transitions and domestic economic imperatives have converged to create a significant strategic opportunity. Rising geopolitical uncertainty, supply-chain diversification, environmental regulation, and the restructuring of international shipping networks are fundamentally reshaping the economics of maritime transport. Simultaneously, India's expanding trade volumes, coastal logistics ambitions, inland waterway development initiatives, and naval modernisation requirements collectively provide a substantial and

enduring domestic demand base capable of sustaining large-scale shipbuilding activity over the long term.

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

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. Conservatively, this segment alone would require an investment of INR 80 - 100,000 crore.

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 is about 20 million DWT requiring a capital outlay of about INR 2,00,000 crores.

Around 95 per cent of India's EXIM cargo is transported by foreign vessels, resulting in an annual foreign exchange outgo of nearly US$ 85 billion. Indian ports handled 915 MMT cargo in FY 2025-26, requiring about 800 vessels. With EXIM cargo projected to reach 6-10 billion MMT by 2047, India may need over 6,000 ships worth nearly US$ 313 billion (INR 30 lakh crore) to ship this cargo on Indian built ships.

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 channel. With a target to increase its current share from 2 per cent to 5 per cent, cargo volumes are projected to reach 500 MMT by 2047, which puts the demand at 70,000 self-propelled barges of 500 DWT each for inland cargo movement. This is estimated to be worth about INR 3,50,000 crore.

The projected warship demand is INR 4,50,000 crores over the next 20 years. Integrating a civil-military structured fusion that leverages capabilities on both the defence and commercial shipbuilding sector

can drive a sustained demand for creating design expertise, advanced fabrication skills and aggregate machinery requirement for pipeline production.

When combined with fleet replacement requirements and naval procurement pipelines, these demand drivers establish the basis for a stable and sustained order environment for Indian shipyards.

Realising the strategic importance of the sector, the Ministry of Ports, Shipping and Waterways (MoPSW), announced a comprehensive financial package to facilitate commercial shipbuilding through the Shipbuilding Financial Assistance Scheme (SBFAS), Shipbuilding Development Fund (SDF), Maritime Development Fund (MDF) and introduced 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 (GTTP). Several initiatives, such as the National Green Hydrogen Mission, have been integrated into the marine sector to support Green Shipping.

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, Maharashtra, Andhra Pradesh, and Odisha, have released policy documents incentivising the development of the shipbuilding ecosystem, through concessional land leases for dedicated shipbuilding clusters, tax reliefs, lower power and water charges, import duty exemption and subsidised finance.

The analysis undertaken in this paper demonstrates that India possesses sufficient endogenous cargo demand to support a viable and self-sustaining shipbuilding ecosystem. However, the existence of demand alone will not automatically generate industrial capability. The study finds that India's shipbuilding challenge is fundamentally institutional and structural in nature. Fragmented policymaking, high financing costs, inadequate industrial clustering, dependence on imported inputs, limited design standardisation, and insufficient integration between commercial and defence shipbuilding, which earlier constrained competitiveness has since been addressed. The experience of leading

shipbuilding nations demonstrates that industrial success is derived not merely from cost advantages, but from coordinated state support, technological modernisation, ecosystem integration, and long-term strategic planning. Shipbuilding competitiveness increasingly depends not only on shipyard capacity but also on access to certified marine-grade green steel, next generation propulsion and power generation systems, autonomous shipping and advanced build strategies. Countries such as South Korea, Japan and China benefit from integrated steel-shipbuilding ecosystems, whereas India's emergence as a major shipbuilding nation will require parallel development of these capabilities.

Accordingly, the paper advances several major conclusions. First, shipbuilding must be treated as a strategic national industry rather than a narrowly commercial activity, given its implications for technological capability, industrial employment, logistics resilience, energy security, and maritime security. Second, India requires a unified maritime industrial strategy integrating shipping, ports, inland waterways, ship recycling, maritime finance, naval procurement, and manufacturing policy within a coordinated institutional framework. Third, technological adaptation through SMART shipbuilding practices including digitalisation, automation, modular construction, and green propulsion technologies will be essential for future competitiveness. Fourth, assured domestic demand through cargo support mechanisms, cabotage protection, and long-term procurement pipelines will remain critical during the sector's growth phase. Fifth, civil-military fusion provides a significant opportunity to accelerate technological capability development and industrial upgrading.

The study concludes that India does not need to depend on export markets to establish a viable shipbuilding industry. The scale of India's domestic cargo, logistics, naval, and cargo requirements is itself sufficient to anchor long-term growth of the industry. Nevertheless, realising this potential will require sustained political commitment, institutional continuity, coordinated policymaking, technological investment, and long-term strategic execution. The coming decade will, therefore, determine whether India continues primarily as a consumer of foreign maritime capacity or emerges as a major global shipbuilding nation with

significant industrial and strategic depth. The opportunity is before us, proactive policies have been announced, the foundations have been laid and the strategic pathway to ‘Build in India” is proposed in the paper. What remains now is decisive execution to transform ambition into reality and realize the vision of the MAKV47 in a time bound, effective and efficient manner.

Appendix A

Summary of the Capabilities of Public Sector Shipyards (2024-25)

Shipyard	Key Infrastructure	Dry Dock / Capacity	Order Book (INR Cr) 2024 - 25)	Deliveries (2021 - 2025)	Specialisation
Mazagon Dock (MDL)[58]	Modular yards, submarine assembly and Goliath cranes	Medium dry docks submarine facilities	34,000 plus	4 - 6 major platforms including submarines and destroyers	Submarines, destroyers and frigates
Cochin Shipyard (CSL)[59]	Large dry dock and ship repair complex	110,000 DWT capacity	21,000	10 - 15 vessels (including carrier completion, tugs and exports)	Aircraft carriers, tankers, tugs and container vessels
GRSE[60]	Multiple building berths and modular construction	Medium capacity	20,000 - 25,000	Over 20 vessels, including 8 delivered in FY26	Frigates, corvettes and patrol vessels
Goa Shipyard[61]	Slipways and outfitting jetties	Small-medium	10,000 - 15,000	10 - 15 vessels	OPVs and fast patrol vessels
Hindustan Shipyard[62]	Dry dock and repair yard	80,000 DWT	About 10,000	5 - 10 vessels	Fleet support ships and submarines (refit)

Source : Author's compilation based on Trade Journals reporting

Appendix B

Summary of the Capabilities of leading Private Sector Shipyards

Shipyard	Key Infrastructure	Dry Dock / Capacity	Product Profile
L&T Kattupalli[63]	Modular yard, shiplift and multiple berths	20,000T shiplift with a large integrated yard	Offshore, defence modules and specialised vessels
Swan Defence and Heavy Industries (Pipavav)[64]	India's largest dry dock with a 600 T Goliath crane	662 m dry dock, handling ships up to 400,000 DWT	Large commercial ships, tankers and naval platforms
Bharati Defence and Infrastructure Ltd.[65]	Multiple shipbuilding facilities along the coast	Small to medium dry docks	Offshore support vessel (OSVs), tugs and barges
Chowgule Shipyard[66]	Slipways, fabrication shops and outfitting berths	Small dry docks and slipways	Mini bulk carriers, tugs and coastal vessels
Shoft Shipyard[67]	Compact yard with modular fabrication facilities	Small capacity	Tugs, pilot boats and dredgers
Yeoman Marine Shipyard[68]	Slipways with shipbuilding and repair facilities	Small capacity	Harbour craft, small cargo vessels and inland/coastal ships

Source : Author's compilation based on Trade Journals reporting

Appendix C

Summary of the Order Book of Selected Shipyards

Shipyard	Vessel Type & Numbers	Value (INR Cr)	Customer	Delivery Period
Swan Defence and Heavy Industries[69]	4 × 92,500 DWT ammonia dual-fuel bulk carriers	INR 1,500 - 3,000 crore (Category IV)	Energy ONE	First vessel in Oct. 2029, then one every 4 months
	6 × 18,000 DWT IMO II chemical tankers (plus option for six more)[70]	US$227 million (INR 1,900 crore)	Rederiet Stenersen AS (Norway)	First delivery in 33 months, followed by serial deliveries
	1 × 104 m naval training ship	Not disclosed (defence export)	Royal Navy of Oman	18 months delivery
	5 × OSVs (completion order)	Not disclosed	San Maritime	Ongoing during the mid-2020s
Garden Reach Shipbuilders & Engineers[71]	4 × 7,500 DWT multi-purpose vessels (plus option for 4 more)	$54M (initial 4) $108M total with options	Carsten Rehder (Germany)	Deliveries from 2025 onward

	1 × Ocean Research Vessel	Not disclosed	National Centre for Polar & Ocean Research	Mid-late 2020s
	1 × Acoustic Research Ship	Not disclosed	DRDO / Naval Physical & Oceanographic Lab	Mid-late 2020s
Chowgule Shipyard[72]	Series of 3,000 -8,000 DWT mini bulk carriers	INR 300 - 800 crore	European coastal operators (including Germany/ Netherlands clients)	Phased deliveries 2024 - 2028
	Harbour tugs (10 -20 units across contracts)	INR 200 - 400 crore (aggregate)	Port authorities in the Middle East and Africa	Serial deliveries (2023 - 2026)
Shoft Shipyard[73]	Harbour tugs & pilot boats (15 - 25 vessels across orders)	INR 150 - 300 crore (aggregate)	Port operators in the UAE, Africa and Southeast As	Continuous deliveries (2023 - 2026)
	Dredgers / workboats (small series)	INR 50 - 150 crore	Regional marine contractors	Ongoing during the mid-2020s

Source : Author's compilation based on Trade Journals reporting.

Appendix D

Summary of the Central Government Policy Initiatives and Schemes

Initiative Name	Primary Objective	Key Features & 2026 Updates
Shipbuilding Financial Assistance Scheme (SBFAS)	Fiscal support for vessel construction.	Provides financial support based on vessel type and contract value, with assistance ranging from 15% for contracts below ₹1 billion, 20% for contracts above ₹1 billion, and 25–30% for specialised green and hybrid vessels. The scheme also includes a Shipbreaking Credit Note facility to encourage new vessel construction[74].
Shipbuilding Development Scheme (SBDS)	Capacity & Infrastructure expansion.	With a budgetary outlay of INR 19,989 crore, 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 [75].
Maritime Development Fund (MDF)	Access to capital.	A INR 25,000 crore corpus where the Govt. contributes 49 per cent. It provides low-cost, long-term financing to increase India's global shipping tonnage from 2 per cent to 5 per cent[76].
Green Tug Transition Programme (GTTP)	Decarbonization of fleet.	Requires major ports to procure green tugs in Phase 1, with the goal of a fully green tug fleet by 2047 [77].

Right of First Refusal (RoFR)	Market Protection.	Gives preference to Indian-built, Indian-flagged, and Indian-owned vessels. Bidders must be within 20 per cent of the L1 (lowest) quote to exercise RoFR[78].
MoPSW-KOICA Collaboration	Skill Development.	South Korea to establish the Shipbuilding Workforce Technology Center. Focuses on workforce mapping and advanced marine engineering training[79].
Greenfield Shipbuilding Cluster Porbandar, Gujarat	Shipbuilding Development Scheme (SbDS)	MoPSW granted in-principle approval under the Shipbuilding Development Scheme (SbDS) for the NSHIP Gujarat Greenfield shipbuilding cluster (1.2 - 1.5 million GT annual capacity) and a ₹1,570 crore Vadinar ship repair facility with 25% capital assistance[80]
Odisha	Approval of Two Mega Maritime Projects (2026)	Approved two strategic maritime projects worth over ₹50000 crore to strengthen Odisha's maritime infrastructure. The initiatives include a ₹21,500 crore Bahuda Greenfield Deep-Sea Port (150 MTPA capacity) in Ganjam and a ₹24,700 crore Shipbuilding & Ship Repair Cluster near Paradip/Kendrapada.[81]

Source : Author's compilation based on Trade Journals reporting

Appendix E

Indicative State Government Initiatives

State/ Authority	Specific Policy/ Initiative	Focus Area & 2026 Status
Tamil Nadu	Tamil Nadu Shipbuilding Policy 2026	Focuses on a $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[82].
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[83]."
Maharashtra	Maharashtra Maritime Board (MMB)	Developing specialized Ship Repair Clusters in Ratnagiri and providing fiscal incentives for inland ROPAX and electric ferry construction to boost coastal connectivity[84].
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[85].

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[86].
Andhra Pradesh	Shipbuilding Market Share Expansion Strategy	Focused on developing India's first mega shipbuilding hub with an estimated production capacity of 1.2 million GT. In 2026, the project is awaiting in-principle approval from the Union Government and is positioned as a key pillar of India's maritime self-reliance strategy[87].
Kerala	Shipbuilding facility Development	Tata Group has proposed a US$1 billion investment to establish a shipbuilding facility in Kerala, marking a significant expansion into the maritime sector. Expected to receive state government approval, the project is poised to strengthen India's shipbuilding ecosystem, boost regional economic development, and enhance the country's global maritime competitiveness[88].

Source : Author's compilation based on Trade Journals reporting.

Appendix F

Summary of the New Shipyard Projects in the Pipeline.

Foreign Shipyard	Indian Entity / Partner	Project Brief	Investment	Timeline
HD Hyundai[89]	Government of Tamil Nadu	Development of a greenfield shipyard at Thoothukudi for large commercial vessels	$4 billion (INR 33,000 crore)	MoU signed in Dec. 2025 project planning and execution under discussion for the late 2020s and early 2030s
HD Korea Shipbuilding & Offshore Engineering[90]	Cochin Shipyard Limited	Collaboration on large shipbuilding, new shipyards, technology transfer, and a block fabrication facility	INR 3,700 for the block facility part of a broader INR 15,000 crore ecosystem	MoU signed in Sept. 2025 phased implementation through the late 2020s
HD Hyundai[91]	BEML	Partnership for port cranes and heavy shipyard equipment, including Goliath cranes	Not disclosed	MoU signed 2025 near-term
HD Hyundai Heavy Industries[92]	Cochin Shipyard Limited + CMA CGM	Technical collaboration to build LNG-powered container vessel	Not disclosed	Deliveries 2029 - 2031
Imabari Shipbuilding[93]	Government of Andhra Pradesh	Proposed investment in a greenfield shipyard under India Japan maritime cooperation	Not disclosed	Discussions continuing during 2025 and 2026

Mitsui O.S.K. Lines[94]	Indian shipyards (multiple)	Exploring tanker construction through partnerships with Indian shipyards	Not disclosed	Exploratory stage with potential projects in the mid to late 2020s
To be finalized (Likely global majors from South Korea, Japan, or China)[95]	Adani Ports and Special Economic Zone (APSEZ)	Proposed commercial shipbuilding and repair complex at Mundra Port with a focus on green vessels	INR 45,000 crore (Part of total port expansion/capital expenditure)	Environmental approvals received in 2024 phased development aligned with Maritime India Vision 2030
HD Korea Shipbuilding & Offshore Engineering[96]	Multi-state ecosystem (TN, Gujarat, AP)	Participation in the development of shipbuilding clusters and new shipyard projects	Part of INR 70,000 crore plus, maritime investment programme	Ongoing (2025 onward)
(Multi-partner / Government-led)	Government of Andhra Pradesh (Dugarajapatnam)	Proposed port, shipbuilding, and industrial cluster with potential collaboration from Japanese and Korean companies	INR 29,253 - INR 29,662 crore (indicative, multi-phase including port plus the industrial zone)	Long term project in the planning and approvals stage during the late 2020s and early 2030s

Source : Author's compilation based on Trade Journals reporting.

Appendix G

Requirement Analysis for Coastal Cargo Carriers by 2035

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	50000	30000	2	139	320	44444	6,944,444
Iron Ore (Ex 1.2.1)	105	50000	30000	2	88	320	28000	4,375,000
Steel (Ex 1.30)	14	8000	4800	3	49	20	972	388,889
Cement (Para 1.2.1.5)	13	8000	4800	3	45	20	903	361,111
Fertilisers (ADB report)	6	8000	4800	3	21	20	417	166,667
Total Bulk Carriers					**341**		**74,736**	12,236,111
Cotton (MMT)	15	1700		3	12	220	2568	
Ceramics (MMT)			30600					357,143
Food Grains (MMT)								

Cars (nos)	800000	1000	18000	4	133	112	14933	2,400,000
Other goods (MMT)	50	1700	30600	3	37	220	8170	1,136,364
Total Container Carriers					**182**		**25,671**	
POL (Ex1.1.0) (MMT)	100	10000	6000	3	278	360	100000	2,777,778
Total Product Tankers					**278**		**100,000**	
Total Outlay					**801**		**200,407**	18,907,395

Source : Author's compilation based on Trade Journals reporting

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

Appendix H

Summary of The Potential Warship Projects in the Pipeline

Program	Numbers	Est Value INR crore	Key Features / Notes	Timeline
Landing Platform Docks (LPDs)[97]	4	20,000 - 25,000	Amphibious assault capability with possible foreign collaboration (Korea/Europe)	Late 2020s - early 2030s
Mine Countermeasure Vessels (MCMVs)[98]	12	30,000	Advanced sonar and mine -hunting systems; revived programme	Late 2020s
Project 75(I) submarines	6	70,000	AIP submarines developed through strategic partnership with foreign OEM and Indian shipyard	Late 2020s - mid 2030s
Project 17B (Follow-on Frigates)[99]	8 (planned)	50,000	Stealth frigates continuing the Project 17A line	Late 2020s - early 2030s
Project 18 Next gen Destroyers[100]	6 (planned)	70,000 - 80,000	Next-generation destroyers with advanced sensors and potential directed energy systems	Early - mid 2030s
Next-Gen Corvettes NGC)[101]	8 - 10	30,000 - 40,000	Modular, multi-role combat vessels	Late 2020s - early 2030s
Fleet Support Ships (FSS)[102]	4	20,000	Replenishment vessels built with international collaboration	Late 2020s
Survey Vessels (Large & Medium)[103]	8 - 10 vessels	5,000 - 8,000	Hydro-graphic and oceanographic roles	Ongoing - late 2020s

Offshore Patrol Vessels (OPVs) (Navy and the Coast Guard)	10 - 15 vessels	10,000 - 15,000	Patrol operations, EEZ security, and export potential	Ongoing - early 2030s
Fast Patrol Vessels / Interceptors	30 plus vessels (series)	8,000 - 12,000	Coastal security vessels designed for high-volume production	Continuous (2025 - 2035)
Indigenous Aircraft Carrier (IAC-2)	1 (planned)	50,000 - 70,000	Potential CATOBAR and advanced aircraft carrier capability under consideration	Early - mid 2030s
Landing Craft Utility (LCU) & Amphibious Craft	Series (10 - 20)	3,000 - 5,000	Island and coastal logistics support	Ongoing
Autonomous / Unmanned Surface Vessels (USVs)	Multiple (emerging)	Not disclosed Total - 4,00,000 approx.	AI - enabled systems for future naval warfare	Late 2020s onward

Source : Author's compilation based on Trade Journals reporting

Endnotes

1 Several revamped laws and provisions in Budget 2025-26 to usher in sea change in shipbuilding CR-Thematic-Shipping%20and%20Shipbuilidng%20(6).pdf Accessed on 25 May 2026

2 "The Economic Importance of the U.S. Private Shipbuilding and Repairing Industry Maritime Administration (MARAD) March 30, 2021. " https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-06/Economicper cent20Contributionsper cent20ofper cent20U.S.per cent20Shipbuildingper cent20andper cent20Repairingper cent20Industry.pdf? . Accessed on 04 April 2026.

3 Global value chains and the shipbuilding industry" OECD Science, Technology and Industry Working Papers, (2019). https://www.oecd.org/content/dam/oecd/en/publications/reports/2019/11/global-value-chains-and-the-shipbuilding-industry_0f7acf43/7e94709a-en.pdf Accessed on 11 April 2026.

4 Shipbuilding Market Size & Share Analysis - Growth Trends And Forecast (2026 - 2031) https://www.mordorintelligence.com/industry-reports/ship-building-marke Accessed on 03 April 2026.

5 "Shipbuilding Market Size Report". Allied Market Research. https://www.alliedmarketresearch.com/press-release/shipbuilding-market.html Accessed on 03 April 2026.

6 Reviews of Shipbuilding Economies. https://www.oecd.org/content/oecd/en/search/publications.html?q=shipbuilding&orderBy=mostRelevant&page=0&facetTags=oecd-languages%3Aen Accessed on 10 May 2026.

7 Global new ship orders drop 44.5% in the first ten months of 2025. PortNews. https://en.portnews.ru/news/385436/ Accessed on 04 April 2026.

8 SunSirs: China's Shipbuilders Secure 1,421 New Ship Orders in 2025, Maintaining Global Leadership in Order Volume https://www.sunsirs.com/commodity-news/petail-29602.html#: :text=Accordingper cent20toper cent20Clarksonper cent20dataper cent20released,marketper cent20shareper cent20toper cent20rankper cent20second.Accessed 12 April 2026

9 Global new ship orders drop 44.5% in the first ten months of 2025 https://en.portnews.ru/news/385436/ Accessed 25 May 2026

10 "Peer Review of the Philippines Shipbuilding Industry", OECD Reviews of Shipbuilding Economies, 1 September 2025. https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/09/peer-review-of-the-philippines-shipbuilding-industry_2ab9bba9/d1b077e1-en.pdf . Accessed 12 April 2026.

11 "Shipping and autonomous shipping technologies development - study report of Vietnam". ESCAP. https://www.unescap.org/sites/default/d8files/event-documents/VietNam_national-study-report-on-autonomous-shipping.pdf Accessed 11 April 2026.

[12] "Review of Maritime Transport 2025, Table II.1 and Table II.2". https://unctad.org/system/files/official-document/rmt2025ch2_en.pdf Accessed on 18 March 2026.

[13] "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. https://www.maximizemarketresearch.com/market-report/shipbuilding-market/148775/ Accessed on 10 June 2026

[14] Cochin Shipyard Limited. https://cochinshipyard.in/ Accessed on 16 April 2026.

[15] Mazagon Dock Limited. https://mazagondock.in/English/modernization

[16] Garden Reach Shipbuilders & Engineers Limited. https://www.grse.in/ Accessed on 16th April 2026.

[17] Hindustan Shipyard Limited. https://hslvizag.in/ Accessed on 16 April 2026.

[18] Goa Shipyard Limited. https://goashipyard.in/ Accessed on 16 April 2026.

[19] Swan Defence and Heavy Industries Limited (Pipavav). https://www.swan.co.in/business-category/shipbuilding-heavy-engineering/ Accessed on 16 April 2026.

[20] L&T Shipbuilding (Kattupalli). https://www.lntshipbuilding.com/ Accessed on 16 April 2026.

[21] "CMA CGM and Cochin Shipyard Limited Sign Contract for Six LNG-Fuelled Container Vessels." https://www.pib.gov.in/PressReleasePage.aspx?PRID=2229873&reg=6&lang=1 Accessed on 25 May 2026

[22] "India's defence shipbuilding sector stands at multi-decade transformation threshold." https://infra.economictimes.indiatimes.com/news/ports-shipping/indias-defence-shipbuilding-sector-stands-at-multi-decade-transformation-threshold-report/126074878 Accessed on 13 May 2026

[23] "Swan Defence & Heavy Industries bags chemical tanker deal worth US$ 227 million." 22 October 2024. https://www.ibef.org/news/swan-defence-heavy-industries-bag-chemical-tanker-deal-worth-us-227-million Accessed on 16 April 2026.

[24] "BEML, HD KSOE and Hyundai Samho Heavy Industries to make maritime and port cranes in India." https://infra.economictimes.indiatimes.com/news/ports-shipping/beml-teams-up-with-hd-ksoe-and-hyundai-samho-for-innovative-crane-manufacturing-in-india/125786064 Accessed on 27 May 2026

[25] 'The Harit Sagar Green Ports Guidelines of 2023 align with the targets set under the Maritime India Vision (MIV) 2030, and with India's COP26 commitments to reduce emission intensity by 45% by 2030 and achieve net-zero by 2070. They serve as a comprehensive framework to help Indian ports develop safe, efficient, green, and sustainable operations'. India's Green Maritime Odyssey Agenda for a Sustainable Ocean Economy. PIB Release 15 Dec 2025. https://

www.pib.gov.in/PressNoteDetails.aspx?NoteId=156496&ModuleId=3&reg=3&lang=2 Accessed on 10 June 2026

[26] The GTTP, launched by the Ministry of Ports, Shipping and Waterways, aims to induct 50 green tugs by 2030, with 16 to be deployed in the first phase between 2024 and 2027. In Phase 1, two green tugs each will be stationed at DPA, Paradip Port Authority, Jawaharlal Nehru Port Authority and V.O. Chidambaranar Port Authority. One tug each will be deployed at the remaining eight major ports. Officials said that four major ports DPA, VPA, JNPA and VoCPA have already awarded work orders for induction of one tug each, with DPA becoming the first port to formally initiate construction. PIB Release dated 03 Dec 2025. https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=2198444&reg=3&lang=1 Accessed on 10 June 2026

[27] This Order is under review and recommendations from IIM, Indore are being examined for a final policy announcement. https://dgma.gov.in/shipping-development/shipping-dev-report-publication-public-notices Accessed 02 May 2026.

[28] "Review of Maritime Transport, 2024". https://unctad.org/system/files/official-document/rmt2024_en.pdf Accessed on 18 March 2026.

[29] "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 vessels[1] totalling 45.5m gt capable of operating on alternative fuels at delivery. The total alternative fuel capable orderbook now stands at 1,942 ships with 1,259 set to use LNG, 385 to use methanol, 139 using LPG, 53 vessels equipped to use hydrogen, 55 ethane, 45 ammonia, 22 biofuel and 4 nuclear-capable". Llyods Register, https://www.lr.org/en/knowledge/insights-articles/alternative-fuelled-ship-orders-remain-significant-in-2025/ Accessed 02 May 2026.

[30] The Directorate General of Shipping (DGS), Mumbai has issued DGS Order No. 08 of 2026 regarding preventive measures to reduce abandonment of Indian seafarers onboard foreign-flag vessels. A total of 366 vessels linked to abandonment cases have been restricted/blacklisted. RPSL companies are now prohibited from deploying Indian seafarers onboard such vessels unless strict compliance requirements are met.

[31] DGS order No. 01 of 2026 Reg. Age Norms and other Qualitative Parameters with respect to Vessels https://www.irclass.org/technical-circulars/goi-dgs-order-no-01-of-2026-reg-age-norms-and-other-qualitative-parameters-with-respect-to-vessels/ Accessed 02 May 2026.

[32] "Govt issues first ship recycling credit note to Bella Shipping for scrapping." https://infra.economictimes.indiatimes.com/news/ports-shipping/govt-grants-first-ship-recycling-credit-note-to-bella-shipping-for-capesize-carrier-scrapping/131408747 Accessed 2 june 2026.

[33] "Coastal Shipping in India - Potential for growth and Action Framework", Committee on Coastal Shipping Ministry of Ports, Shipping and Waterways, January 2026 https://dgma.gov.in/download/1769691524_697b598415456_coastal-committee-report-final-jan2026.pdf Accessed 02 May 2026

[34] Maritime Amrit Kaal Vision 2047, pg 125.

[35] "Coastal Shipping in India - Potential for growth and Action Framework", Committee on Coastal Shipping Ministry of Ports, Shipping and Waterways, January 2026 https://dgma.gov.in/download/1769691524_697b598415456_coastal-committee-report-final-jan2026.pdf Accessed 02 May 2026

[36] Data sourced from the Maritime India Vision 2030. Relevant Exhibit Numbers are shown in the Table itself. Accessed 02 May 2026.

[37] "Major ports handled 915.17 million tonnes of cargo in FY26: Sonowal", https://infra.economictimes.indiatimes.com/news/ports-shipping/indias-major-ports-achieve-record-cargo-handling-of-91517-million-tonnes-in-fy26/130489541 Accessed 02 May 2026.

[38] Maritime Amrit Kaal Vision 2047, pg 490.Accessed 02 May 2026.

[39] "International Trade Statistics", SIAM. https://www.siam.in/cpage.aspx?mpgid=8&pgid1=11&pgidtrail=128. Accessed on 3 May 2026.

[40] "Coastal Shipping in India: Potential for growth and Action Framework, January 2026", Accessed 02 May 2026. Committee on Costal Shipping, Ministry of Ports, Shipping and Waterways. Accessed 02 May 2026.

[41] Ibid.

[42] Maritime Amrit Kaal Vision 2047, pg 125.Accessed 02 May 2026.

[43] "Digitalisation of Shipyard Production Planning: A Review of Simulation, Optimisation, AI, and Digital Twin Methods (2010–2025)" Journal of Marine Science and Engineering 14, no. 4: 396. Bordbar, Amir, Mina Tadros, Amin Nazemian, Myo Zin Aung, Konstantinos Georgoulas, Panagiotis Louvros, and Evangelos Boulougouris. 2026. https://doi.org/10.3390/jmse14040396 Accessed 02 May 2026.

[44] Extract from "Shipping and Shipbuilding Markets, Annual Report 2024, BRS Group, Germany, pg11. https://it4resources.interactiv-doc.fr/catalogues/annual_review_2024_668/galeries/1711537990annual_rev.pdf Accessed 02 May 2026.

[45] "Methanol as Marine Fuel at High Readiness Level, but Adoption Hurdles Remain." DNV Maritime, Alternative Fuels Insight Programme(2025). https://www.dnv.com/news/2025/dnv-report-methanol-as-marine-fuel-at-high-readiness-level-but-adoption-hurdles-remain/ Accessed 10 June 2026.

[46] "Powering the maritime transition." https://www.everllence.com/marine/products/two-stroke-engines/ammonia-engine/ Accessed 10 June 2026.

[47] Media Release. WinGD. https://wingd.com/news-media/news/wingd-powers-delivery-of-world-s-first-ocean-going-ammonia-fuelled-vessel-antwerpen-to-exmar Accessed 14 June 2026.

[48] As a stimulus to reduce carbon intensity of all ships by 40% by 2030 compared to 2008 baseline, ships are required to calculate two ratings: their attained Energy Efficiency Existing Ship Index (EEXI) to determine their energy efficiency, and their annual operational Carbon Intensity Indicator (CII) and associated CII rating. Carbon intensity links the GHG emissions to the amount of cargo carried over distance travelled.. https://www.imo.org/en/mediacentre/hottopics/pages/eexi-cii-faq.aspx Accessed on 02 May 2026.

[49] Based on contribution from RAdm JS Mann, NM,VSM (Retd) Advisor Shipbuilding, Boston Consulting Group.

[50] As per the Taxonomy of Green Steel, "Green Steel" shall be defined in terms of percentage greenness of the steel, which is produced from the steel plant with CO_2 equivalent emission intensity less than 2.2 tonnes of CO_2e per tonne of finished steel (tfs). The greenness of the steel shall be expressed as a percentage, based on how much the steel plant's emission intensity is lower compared to the 2.2 t-CO_2e/tfs threshold. Based on the greenness, the Green steel shall be rated as follows. (1) Five-star green-rated steel: Steel with emission intensity lower than 1.6 t-CO2e/tfs. (2) Four-star green-rated steel: Steel with emission intensity between 1.6 and 2.0 t-CO2e/tfs. (3)Three-star green-rated steel: Steel with emission intensity between 2.0 and 2.2 t-CO2e/tfs. Ministry of Steel. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2083839&reg=48&lang=2 Accessed 10 June 2026.

[51] "CUSAT, CSL sign pact to set up centre of excellence". The Hindu, August 29, 2025. https://www.thehindu.com/news/national/kerala/cusat-csl-sign-pact-to-set-up-centre-of-excellence/article69989415.ece Accessed on April 22, 2026.

[52] "Garden Reach Shipbuilders & Engineers (GRSE) and Hindustan Shipyard Limited (HSL) signed an MoU to form a consortium, aiming to build ships and strengthen India's maritime capabilities". ET Infra. https://infra.economictimes.indiatimes.com/news/ports-shipping/grse-and-hsl-join-forces-for-revolutionary-shipbuilding-consortium-in-india/128119256 Accessed on April 22, 2026.

[53] "UK National Shipbuilding Office". https://www.gov.uk/government/groups/national-shipbuilding-office Accessed on 04 April 2026.

[54] "EU Maritime Industry Strategy". https://transport.ec.europa.eu/news-events/news/commission-launches-industrial-maritime-strategy-competitive-sustainable-and-resilient-eu-maritime-2026-03-04_en Accessed on 04 April 2026.

[55] "America's Maritime Action Plan". The White House. https://www.whitehouse.gov/maritimemight/ Accessed 05 April 2026.

[56] "Strengthening the international competitiveness of the shipbuilding industry." https://www.mlit.go.jp/maritime/maritime_tk5_000014.htmlAccessed 05 May 2026.

[57] Coastal Shipping Act, Section 8 states: "The Central Government shall, within a period of two years from the date of commencement of this Act, by notification, publish a National Coastal and Inland Shipping Strategic Plan for the purposes of this Act, which shall be updated every two years by a like notification. The Strategic Plan shall include the following, namely:- (a) assessment of the condition of coastal shipping routes in India including routes occupied by inland waterways; (b) identification of the operational improvements required in coastal shipping, including those by way of integration with inland waterway routes, in order to make coastal maritime transport a cost-efficient mode of transportation for goods and passengers;(c) long term forecasts of traffic on coastal shipping and inland waterways network; (d) identification of best practices for improving the performance of coastal shipping including the synergy presented by inland waterway routes and other modes of transportation; (e) identification of new routes for coastal shipping and integration thereof with inland waterways and existing coastal shipping routes; (f) measures for the promotion of building, registration and participation of Indian vessels in coastal shipping in India;

[58] Mazagon Dock Shipbuilders Limited. (2025). Annual Report 2024-25: Strengthening National Security through Indigenous Shipbuilding. Mumbai: Ministry of Defence, Government of India. https://mazagondock.in/English/pages/Annual-report Accessed on 16th April

[59] Ministry of Ports, Shipping and Waterways. (2024). Statistics of India's Ship Building and Ship Repairing Industry 2023-24. New Delhi: Government of India. https://shipmin.gov.in Accessed on 16th April

[60] 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. https://grse.in/investors Accessed on 16th April

[61] Goa Shipyard Limited. (2026). Annual Report 2025-26: Scaling Excellence in Indigenous Shipbuilding. Vasco-da-Gama: Ministry of Defence, Government of India. https://goashipyard.in/objective/annual-reports Accessed on 16th April

[62] "Annual Report 2025-26: Strengthening Maritime Infrastructure." Ministry of Ports, Shipping and Waterways. (2026). New Delhi: Government of India. https://shipmin.gov.in/sites/default/files/Annual%20Report%202025-26.pdf Accessed on 16th April

[63] "Top 10 shipbuilding companies in India ranked by capacity, orderbook and defence programs (2026)." Pandey, K. (2025, July 24). Maritime Gateway. https://www.maritimegateway.com/top-10-shipbuilding-companies-in-india-powering-the-nations-maritime-might/ Accessed on 16th April

[64] Ibid

[65] Ibid

[66] Ibid

[67] Ibid

[68] Yeoman Marine Services Pvt. Ltd. (2026). Corporate Overview: Excellence in Shipbuilding and Turnkey Refits. Navi Mumbai: YMSPL Media Cell. https://yeomanmarine.com/overview Accessed on 16th April Infomerics Ratings. (2025). Credit Rating Report: Yeoman Marine Services Private Limited. Mumbai: Infomerics Valuation and Rating Pvt. Ltd. https://www.infomerics.com/pressrelease/yeoman-marine-services-private-limited Accessed on 16th April

[69] "Swan Defence & Heavy Industries bag chemical tanker deal worth $227 million." The Economic Times. https://m.economictimes.com/industry/transportation/shipping-/-transport/swan-defence-heavy-industries-bag-chemical-tanker-deal-worth-227-million/articleshow/127231476.cms Accessed on 16th April 2026.

[70] Ibid

[71] "Garden Reach secures order for four more hybrid multipurpose vessels." Shipping Tribune. https://www.shippingtribune.com/news/shipping/Garden+Reach+secures+order+for+four+more+hybrid+multipurpose+vessels Accessed on 16th April 2026.

[72] Chowgule and Company Pvt. Ltd. (Shipbuilding Division). Current Projects and Vessel Portfolio. https://chowgulesbd.com/shipbuilding/ Accessed on 16th April 2026.

[73] Shoft Shipyard Pvt. Ltd. Commercial and Defence Vessel Deliveries. https://shoftshipyard.com/commercial Accessed on 16th April 2026.

[74] "Shipbuilding Financial Assistance Policy: Contracts and Disbursements Update." PIB India. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2240069 Accessed on 16th April 2026.

[75] "Govt Notifies Guidelines for Shipbuilding Assistance, Development Schemes; ₹44,700 Crs Outlay." Ministry of Ports, Shipping and Waterways. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209139 Accessed on 16th April 2026.

[76] "Maritime Development Fund of Rs 25,000 Crore Proposed." PIB India. Union Budget 2025-26: https://www.pib.gov.in/PressReleasePage.aspx?PRID=2098382 Accessed on 16th April 2026.

[77] "Standard Operating Procedure: Green Tug Transition Program (GTTP)." Ministry of Ports, Shipping and Waterways. https://shipmin.gov.in/en/content/standard-operating-procedure-green-tug-transition-program Accessed on 16th April 2026.

[78] "Circulars on Chartering and Right of First Refusal (RoFR) Hierarchy." Directorate General of Shipping. https://www.dgshipping.gov.in/Content/DGSCirculars.aspx?branchid=10 Accessed on 16th April 2026.

[79] "Implementation Plan with KOICA to Boost Skill Development in India's Shipbuilding Sector." PIB India. MoPSW Signs https://www.pib.gov.in/PressReleasePage.aspx?PRID=2248777 Accessed on 16th April 2026.

[80] Greenfield shipbuilding cluster to come up in Gujarat's Porbandar https://ddindia.co.in/2026/07/greenfield-shipbuilding-cluster-to-come-up-in-gujarats-porbandar-centre-backs-%E2%82%B91570-crore-vadinar-ship-repair-project/ Accessed on July 15, 2026

[81] Odisha plans ₹50,000 crore maritime infra push with port, shipbuilding hub https://www.business-standard.com/economy/news/odisha-plans-50-000-crore-maritime-infra-push-with-port-shipbuilding-hub-126062401273_1.html Accessed on 1 July 2026

[82] Guidance Tamil Nadu. Tamil Nadu Shipbuilding and Repair Policy 2026: Driving Global Maritime Excellence. https://www.investingintamilnadu.com/sectors/shipbuilding-policy-2026 Accessed on 16th April 2026.

[83] Gujarat Maritime Board (GMB). Integrated Maritime Policy and Concession Guidelines for Shipbuilding Yards. https://gmbports.org/maritime-policy Accessed on 16th April 2026.

[84] Maharashtra Maritime Board. Strategic Roadmap for Ship Repair Clusters and Coastal Shipping Incentives. https://mahammb.maharashtra.gov.in/shipbuilding-repair Accessed on 16th April 2026.

[85] Andhra Pradesh Maritime Board. Master Plan for Port-Led Infrastructure and Shipbuilding Zones. https://apmaritime.ap.gov.in/master-plan Accessed on 16th April 2026.

[86] IPICOL Odisha. Industrial Policy Resolution (IPR): Special Incentives for the Maritime Thrust Sector. https://investodisha.gov.in/ipr-policy/shipbuilding Accessed on 16th April 2026.

[87] Rs 30,000-Crore Mega Cluster in Andhra Pradesh Set for Centre's Green Light https://www.maritimegateway.com/rs-30000-crore-mega-cluster-in-andhra-pradesh-set-for-centres-green-light/ Accessed n 20th May 2026

[88] Tata Group eyes new growth horizon with $1 billion shipbuilding investment in Kerala https://supplychain.economictimes.indiatimes.com/news/logistics-and-transport/tata-group-eyes-new-growth-horizon-with-1-billion-shipbuilding-investment-in-kerala/132440369 Accessed on 16th July 2026.

[89] HD Hyundai's ambitious $4 billion shipyard project in Tamil Nadu. 10th February 2026. https://infra.economictimes.indiatimes.com/news/ports-shipping/hd-hyundais-ambitious-4-billion-shipyard-project-in-tamil-nadu/129586239 Accessed on 16th April 2026.

[90] Shri Sarbananda Sonowal flags off maiden voyage of India's first indigenously developed Multi-Purpose Vessel. 21st February 2026. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2170036&reg=3&lang=2 Accessed on 16th April 2026.

[91] BEML signs MoU with Indian Navy for development of advanced marine propulsion systems. 5th December 2025. https://www.bemlindia.in/wp-content/uploads/2025/12/pressrelease051225.pdf Accessed on 16th April 2026.

[92] Cochin Shipyard signs MoU with Adani Harbour Services for Green Tug Transition Programme (GTTP). 20th March 2024. https://cochinshipyard.in/news/view/85 Accessed on 16th April 2026.

[93] Japan's largest shipbuilder Imabari eyes opportunities in Andhra Pradesh. 15th February 2025. https://infra.economictimes.indiatimes.com/news/ports-shipping/japans-largest-shipbuilder-imabari-eyes-opportunities-in-andhra-pradesh/117954360 Accessed on 16th April 2026.

[94] Mitsui O.S.K. Lines plans to place vessel orders with Indian shipyards in the future. 24th September 2025. https://infra.economictimes.indiatimes.com/news/ports-shipping/mitsui-o-s-k-lines-plans-to-place-vessel-orders-with-indian-shipyards-in-the-future/123667421 Accessed on 16th April 2026.

[95] Billionaire Gautam Adani now wants to build ships at India's largest port - Adani Group's Mundra. 9th July 2024. https://timesofindia.indiatimes.com/business/india-business/billionaire-gautam-adani-now-wants-to-build-ships-at-indias-largest-port-adani-groups-mundra/articleshow/111598454.cms Accessed on 16th April 2026.

[96] HD Hyundai Korea Shipbuilding & Offshore Engineering. 2026. https://www.hd-ksoe.com/en/main Accessed on 16th April 2026.

[97] Defence Acquisition Council grants AoN for amphibious assault vessels and naval modernization. 27th October 2025. https://www.newsonair.gov.in/ministry-of-defence-fully-utilises-%E2%82%B91-86-lakh-crore-capital-outlay-for-fy-2025-26/ Accessed on 16th April 2026.

[98] Delivery of 'Malwan' the second ASW Shallow Water Craft with Mine Warfare capabilities. 31st March 2026. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2247339 Accessed on 16th April 2026.

[99] Ministry of Defence clears ₹70,000 crore mega-project for stealth frigates. 15th July 2025. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1989502 Accessed on 16th April 2026.

[100] Indian Navy pushes Maritime Capability Perspective Plan target to 2032. 2nd December 2025. https://m.economictimes.com/news/defence/indian-navy-pushes-maritime-capability-perspective-plan-target-to-2032/articleshow/125723041.cms Accessed on 16th April 2026.

[101] Rs 40,000 Cr Navy Boost: India set to build 8 New Generation Corvettes. 23rd March 2026. https://www.timesnownews.com/india/rs-40000-cr-navy-boost-india-set-to-build-8-new-generation-corvettes-article-108723451 Accessed on 16th April 2026.

[102] Keel laying of third Fleet Support Ship for Indian Navy at Kattupalli. 9th July 2025. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2138104 Accessed on 16th April 2026.

[103] Fourth Survey Vessel (Large) 'Sanshodhak' delivered to Indian Navy at GRSE Kolkata. 31st March 2026. https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2247145 Accessed on 16th April 2026.

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