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SP'S MILITARY YEARBOOK 2025 – 2026

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SWAVLAMBAN 2026



The Indian Navy's fifth innovation seminar highlighted high-risk R&D, supply chain resilience, start-up empowerment, and dual-use technology roadmaps for futuristic defence capability.

INDO-PACIFIC REGIONAL DIALOGUE 2026



The Indian Navy's apex-level international strategic conference concluded in New Delhi, outlining a comprehensive collaborative blueprint for supply chain resilience, ocean science, climate preparedness, and the responsible adoption of transformative maritime technologies.

▷ LEAD STORY

PHOTOGRAPH: OFFICIALGRSE / X



Over a period of time, India has developed significant indigenous Naval and Maritime shipbuilding capability. Shown here are the Docks of Garden Reach Shipbuilders and Engineers (GRSE).



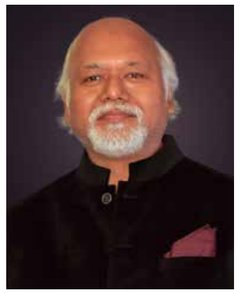
Bharat's Shipbuilding Capability

Bharat must leverage its maritime strengths, naval indigenisation, policy reforms, modern technologies and expanded domestic capacity to transform shipbuilding into a powerful engine of economic growth and strategic self-reliance

■ ADMIRAL R. HARI KUMAR (RETD)
FORMER CHIEF OF THE NAVAL STAFF, INDIAN NAVY

BHARAT HAS BEEN A pioneering nation in maritime activity with the Indian Ocean being the oldest travelled, dating back over 5,000 years, serving as an invaluable conduit for trade, cultural and social exchanges. Historically, the long coastline of 11,099 km, 1,389 island territories, large seafaring population and developed maritime infrastructure, encouraged Bharat's maritime activities along the coast and across the oceans. The fact that Harappan artefacts have been found in Oman and the Levant, all the way to Greece, reveals that the recent IMEC - India Middle East Europe Corridor, was always there, albeit in a different form. The key enabler for any maritime activity remains the ship or boat, which has been the largest and most complex machine ever produced by man from upper paleolithic age up till the Nineteenth century AD. In the days of sail, wooden ships made in Bharat were renowned for their quality, seakeeping, size, speed, stability and survivability. Shipbuilding was a highly evolved sector well up to Bharat's colonisation and the consequent denial of Industrial Revolution. Thereafter, the decline was rapid with Bharat's shipbuilding sector currently accounting for less than 1 per cent of the global market with a capacity of 0.072 million Gross Tonnage (GT), ranking 18th in the world while 95 per cent of Bharat's trade by volume and 68 per cent by value transits upon the seas. This structural imbalance drains foreign exchange reserves, costing billions annually in freight payments to foreign built and foreign-flagged vessels. Shipbuilding is a vital sector that generates job multiplier of 6.48 times in downstream industries and higher economic circulation of 1.82 times the initial capital. While the share of shipbuilding by Western countries have reduced over time due to globalisation, countries like China, South Korea and Japan control over 90 per cent of global commercial vessel production through heavy industrial automation and aggressive state financing. The present Government has set an aggressive target of capturing 5 per cent market share by 2030 and entering the top five global shipbuilding nations by 2047 through Maritime India Vision 2030 and Maritime Amrit Kaal Vision 2047. The paper initially examines the current state of shipbuilding in Bharat. Thereafter it brings out the challenges faced by the shipbuilding sector. It brings out lessons from the naval indigenisation effort to catalyse the commercial shipbuilding process. It then elucidates the policy changes that have been put in place by the Government. The paper then makes specific recommendations towards realising the maritime vision of Bharat.

EDITORIAL



In the lead story, Admiral R. Hari Kumar (Retd) examines the gap between India's historic maritime and shipbuilding strengths and its current position in the global commercial shipbuilding industry. Despite its extensive coastline, substantial maritime trade and established naval shipbuilding capabilities, India accounts for less than one per cent of global shipbuilding. The article identifies the structural challenges facing domestic shipyards, including high capital costs, import dependence, limited automation, productivity gaps and inadequate supply-chain capacity. Drawing lessons from the Indian Navy's successful indigenisation journey, it explores how naval manufacturing expertise could support commercial shipbuilding. It also examines government initiatives, financial support, maritime clusters, workforce development and advanced manufacturing technologies, arguing that their effective implementation could help establish a globally competitive shipbuilding ecosystem and strengthen economic self-reliance.

In Boosting Amphibious Capability, Lt General P.C. Katoch (Retd) examines the Indian Navy's efforts to strengthen its amphibious warfare, sealift and expeditionary capabilities in response to evolving maritime requirements. Reviewing existing landing platforms and craft, the article outlines planned acquisitions, including next-generation LPDs and larger Landing Craft Utility vessels. These platforms are expected to enhance the Navy's ability to transport troops, armour and equipment over long distances, reinforce island territories and operate in challenging sea conditions. Their wider roles in logistics, coastal security, search and rescue, and HADR are also highlighted.

Does the Indian Navy Need a Third Aircraft Carrier? Manish Kumar Jha assesses the operational and strategic case for a third carrier amid China's expanding carrier programme. The article explains why two carriers cannot ensure sustained aviation coverage across India's eastern and western maritime theatres, particularly when one is undergoing maintenance. It examines the choice between a follow-on INS Vikrant-class carrier and a larger, more technologically ambitious CATOBAR design, weighing the financial, industrial and operational implications. It also considers the need to balance carrier investment, calling for a clear, long-term acquisition roadmap.

Manish Kumar Jha also explores the relationship between maritime security and India's energy and economic security. Focusing on vulnerable shipping routes, particularly the Strait of Hormuz, the article examines the consequences of disruptions to oil and gas supplies. Drawing on developments in 2026, including Operation Urja Suraksha, it discusses the Navy's role in protecting merchant shipping and Indian seafarers. It also considers wider Indo-Pacific threats, maritime surveillance, international coordination and sustained naval deployments, arguing that safeguarding India's maritime interests requires a whole-of-government approach.

Wishing all discerning readers happy reading!



JAYANT BARANWAL
Publisher & Editor-in-Chief

Current Capability

The shipbuilding sector market size in Bharat is about $1.1 billion, a small fraction of the $200 billion global industry and consists of public and private sector shipyards. Public sector shipyards like Mazagon Dock Shipbuilders Limited (MDSL), Cochin Shipyard Limited (CSL), Goa Shipyard Limited (GSL), Garden Reach Shipbuilders and Engineers Limited (GRSE)and Hindustan Shipyard Limited (HSL) hold majority of infrastructure and financial resources. While Cochin Shipyard Limited (CSL) leads in both commercial and complex naval shipbuilding, Mazagon Dock Shipbuilders Limited (MDSL), Garden Reach Shipbuilders & Engineers Limited (GRSE) and Goa Shipyard Limited (GSL) focus primarily on naval orders. Hindustan Shipyard Limited (HSL) had built large cargo ships for a long period of time till market factors made it economically unviable. A number of private shipyards like L&T Shipbuilding, Swan Defence and Heavy Industries Limited, Chowgule and Co, Mandovi Docks, Titagarh Naval Systems Limited, etc, have also developed over time and have gradually been expanding their capability and capacity from constructing coastal vessels, interceptor craft and tugs to medium-sized cargo ships. L&T Shipbuilding, Kattupalli and Swan Defence and Heavy Industries Limited handle sophisticated defence and commercial auxiliary vessels. A number of private yards have struggled with debt or filed for bankruptcy due to long periods without new orders, cash flow issues, poor fiscal discipline and losses due to poor management. Some large greenfield private shipyard projects for building large LNG carriers are also under process.

Challenges Faced

Bharat spends an estimated $75 billion to $85 billion annually in foreign freight bills since domestic shipping lines own very few vessels. This capital outflow highlights the strategic need for domestic shipbuilding and ownership. Shipyards also lacked a level playing field with ships built in Bharat costing over 20 per cent more than those built in China or South Korea. This price gap stems from systemic disadvantages consisting of high working capital interest rates (10-12 per cent vs 3-4 per cent abroad), import dependencies (propulsion, electronics), inverted tariff structures on raw components and long build times due to low automation. Up to 60 per cent to 70 per cent of a ship's value lies in its components, including propulsion systems, navigation suites, deck machinery, marine valves, pumps, motors, control systems and specialised steel. Bharat lacks a mature ecosystem for marine ancillaries, forcing yards to import basic equipment. This incurs additional freight costs, customs delays and currency fluctuation risks. Inverted duty structures historically penalised domestic manufacturing by placing higher tariffs on raw materials and components than on finished vessels. While recent tax reforms have eased these issues, bureaucratic hurdles and securing bank guarantees causes delays. There is a huge productivity gap when comparing with foreign yards which use advanced robotics, modular block construction and digital twin technology to build mega-carriers in about 12 months. In contrast, Indian commercial projects often face delays due to low automation, outdated material handling and slower dry dock rotations.

PHOTOGRAPH: PIB Mumbai



INS Sahyadri, built indigenously by Mazagon Dock Shipbuilders Limited

Naval Indigenisation as a Commercial Shipbuilding Catalyst

While commercial shipbuilding has lagged, Bharat's warship construction sector provides a strong template for domestic manufacturing. Bharatiya Nausena has championed indigenisation over a long period of time, transitioning from a "Buyers Navy" to a "Builders Navy". Starting with a modest Seaward Defence Boat in the 1960's to commissioning the Vikrant, Project 17A Frigates and New Generation Survey Vessels in the 2020's with over 75 per cent indigenous content has been a remarkable success story in indigenous warship design and warship building. This military success offers several valuable industrial advantages and lessons for commercial shipbuilding as well. Collaboration between the Bharatiya Nausena, Defense Metallurgical Research Laboratory (DMRL) and Steel Authority of India Limited (SAIL) led to the domestic production of DMR-249 warship-grade steel which eliminated reliance on foreign specialty steels and established a local supply chain for commercial hull manufacturing. In terms of defining the capability, building a warship has three major aspects – Float, Move, Fight. Float component consisting of design, steel, fabrication and hull systems is more than 96 per cent indigenous. Move component consisting of propulsion, shafting, control systems, engines, power systems, pumps, motors, etc, is over 65 per cent indigenous. Fight component consisting of sensors, weapons, combat management systems, networks and communications, etc, is around 60 per cent indigenous. Much technology transfer has been achieved through designing and building guided-missile destroyers, stealth frigates and submarines. This has built up a skilled domestic workforce in complex systems integration, advanced welding and precision engineering. The aim is also to shift from a regional warship builder to an affordable warship exporter, targeting markets in Southeast Asia, the Middle East and Africa by offering competitive naval patrol vessels, fast attack craft and auxiliary vessels.

Maritime Amrit Kaal Vision 2047 envisages scaling up of capacity to 3 million gross tonnages annually and generate 2.2 million direct and indirect jobs

Policy Support

To address structural changes across infrastructure development, supply chain indigenisation, fiscal policy and military-commercial synergy, the Government has outlined aggressive measures along with time bound targets to scale domestic capabilities and transform shipyards into contemporary enterprises. During the 'Samudra se Samriddhi' programme held at Bhavnagar, Gujarat on September 20, 2025, Prime Minister Narendra Modi stated that, "Shipbuilding is no ordinary industry. Across the world, it is called the Mother of All Industries." Maritime India Vision 2030 aims to secure 5 per cent share of the global shipbuilding market alongside port capacity enhancements. Maritime Amrit Kaal Vision 2047 envisages scaling up of capacity to 3 million gross tonnages annually, rank amongst the global top five in shipbuilding and generate 2.2 million direct and indirect jobs driving employment in engineering, welding, logistics and marine design. The Government plan is focused on setting up dedicated maritime clusters along both coasts (e.g., Gujarat, Maharashtra, Tamil Nadu, and Andhra Pradesh). These hubs co-locate shipyards, component suppliers, testing labs and maritime universities to lower logistics costs. There is a focus towards quadrupling the Indian-flagged fleet tonnage, creating a steady stream of domestic orders for local yards and reducing reliance on foreign shipping lines. Since long-term capital is a key requirement for shipbuilding, Sagarmala Finance Corporation Limited (SMFCL) has been launched as the country's first specialised financial institution dedicated to funding the maritime and shipping sector. It commenced active lending operations in December 2025 with an overall borrowing limit of ₹25,000 crore and set a lending target of ₹8,000 crore for the fiscal year to provide short, medium and long-term funding for ports, shipping companies, MSMEs, startups, shipbuilding and inland waterways. The comprehensive ₹69,725 crore package approved by the government is built upon a strategic four-pillar approach to revitalise India's maritime infrastructure, boost domestic tonnage and eliminate cost disadvantages faced by domestic shipyards. Shipbuilding Financial Assistance Scheme (SBFAS) for ₹24,736 crore is meant as a financial cushion to level the playing field between domestic shipyards and heavily subsidised global competitors. It provides an extended timeline upto March 31, 2036, financial assistance between 15 per cent to 25 per cent of contract value or fair price of a vessel to bridge international cost disparities and shipbreaking credit note with a dedicated ₹4,001 crore sub-allocation to incentivise owners to recycle old ships domestically and purchase newly manufactured ones from Bharat's shipyards. National Shipbuilding Mission is being set up as a dedicated central body to aggregate national ship demand, streamline procurement and oversee international industrial tie-ups. Maritime Development Fund (MDF) of ₹25,000 crore to provide the maritime sector with cheap, long-term capital using a blended finance model. Maritime Investment Fund (MIF) has been allocated ₹20,000 crore to operate on a public-private equity structure where 49 per cent consists of concessional Government capital and 51 per cent is commercially raised from multilateral institutions, sovereign funds and bilateral lenders. Interest Incentivisation Fund has been allocated ₹5,000 crore to act as an interest subvention cushion, effectively reducing the net borrowing costs for companies looking to expand shipping tonnage or set up local ship-repair facilities. Shipbuilding Development Scheme (SbDS) of ₹19,989 crore focuses on physical infrastructure capacity expansion, asset building and geographical clusters. It funds the initial establishment of three state-of-the-art greenfield shipbuilding clusters in Andhra Pradesh, Gujarat and Tamil Nadu. It also finances construction of capital-heavy infrastructure like mega dry-docks, advanced blasting shops and heavy-duty cranes that can be shared across multiple small-and-medium shipbuilders to cut their overhead costs. Skilling, Policy & Regulatory Enhancements have been put in place to govern how the money is deployed through grant of infrastructure status directly to large ships to help operators secure lower interest rates and flexible loan tenures from standard commercial banks. It also institutionalises specialised workforce upgrades. Currently, 11 major domestic shipyards have entered into active MoUs with 34 Industrial Training Institutes (ITIs) across 8 coastal states to provide structured On-the-Job Training (OJT) for marine fabrication and engineering. A Ship Technology Centre has also been approved with a funding support of ₹305 crore to support Research an Development efforts for futuristic designs. The Harit Nauka guidelines mandate that domestic ports transition to green tugboats. This policy creates a steady baseline of orders for local shipyards, helping them build experience in electric and hybrid propulsion before scaling up to larger commercial vessels.

Way Ahead

Comprehensive policy measures have been spelt out by the Government to support the shipbuilding sector by addressing the core issues. However, its success lies in the details of execution and implementation. Ease of doing business must address grant of timely approvals to allot land for shipyard projects. Shipbuilding requires a complete ecosystem spanning multiple domains, fields and ministries/departments to compete and succeed globally. While the National Shipbuilding Mission is being envisaged, it is felt that a National Shipbuilding Authority could provide the teeth and heft to address cross domain issues with speed and decisiveness to achieve the targets set in the maritime policies. Since cost remains a key consideration in commercial shipbuilding, operations and maintenance, shipyards need to focus on efficiency in time and cost to build quality ships. Modern technology needs to be adopted in shipbuilding at an accelerated pace. Greenfield projects can readily implement contemporary technology. But for most of the existing yards this is a challenging task due to constraints of land/space and mindsets, requiring viable innovative solutions. Adoption of "Smart Shipbuilding Farms" or "Open-Air/Land-Based Modular Shipbuilding", the new way in which ships are built without a traditional drydock or slipway, using Self Propelled Modular Transporters that lift and move a 10,000 tonne block/ship needs to be adopted to achieve scale so as to reduce build time and cost to compete globally. Industry 4.0 tools to improve efficiency, AI assisted Virtual/Augment Reality, Model Based Systems Engineering which provide 3D model with 3D walkthrough designs, Digital Twins that reduce rework by 30-40 per cent, Contemporary Robotic Welding creating mega panels of 20x40m that helps reduce build time substantially, 3D printing of propellers, valves and spare parts, etc. need to be implemented urgently. Such modern techniques and technology have helped reduce build time for a container ship from 36 months to 12-18 months in Korean and Chinese shipyards. Cost reduction of 10-15 per cent has also been made possible. Some of this technology has already been adopted for warship building in Bharat at CSL's new "International Ship Repair Facility" and GRSE modular halls. The International Maritime Organization (IMO) has set a target of net-zero greenhouse gas emissions for international shipping by 2050. This creates an opportunity for Bharat to bypass traditional vessel designs and establish an early lead in green shipping technology. Cochin Shipyard Limited has already developed hydrogen fuel cell vessels and hybrid electric catamarans for inland waterways. Future projects could focus on methanol, ammonia and battery-assisted/hybrid propulsion systems which will need fuel flexible tanks for Ammonia/Methanol/Hydrogen and engine rooms pre-designed for dual-fuel engines to be factored in ship design.

Conclusion

Bharat's GDP is 3.5 trillion dollars today and by some estimates, it could surpass 26 trillion dollars mark by 2047 – a nearly eight-fold increase. It is evident, that an export-based economy will be a prime mover for achieving the goal of becoming a fully developed nation by 2047. Therefore, the aspects of 'port-led development' and 'Blue Economy' will continue to play a pivotal role as vast volumes of exports, inevitably, will be facilitated by ships. So, in a sense, Bharat's maritime sector stands at a turning point. While its current global market share remains low, the combination of growing domestic freight demand, established naval construction capabilities and clear long-term Government targets provides a strong foundation for expansion. By addressing high capital costs, building up local supply chains, modernising, implementing contemporary technology, upskilling the workforce, improving productivity, investing early in green propulsion and creating an empowered agency to aggressively facilitate and pursue the national vision, Bharat can transform its shipbuilding industry into a major driver of economic growth and strategic self-reliance.



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Boosting Amphibious Capability

The Indian Navy's amphibious capabilities are undergoing a significant transition as it moves to a strategic blue-water expeditionary fleet to counter the growing presence of the Chinese People's Liberation Army Navy (PLAN) in the Indian Ocean

PHOTOGRAPHS: AlphaX Aerospace, Aspera Industries

■ LT GENERAL P.C. KATOCH (RETD)

THE INDIAN NAVY'S AMPHIBIOUS capabilities are undergoing a significant transition. While its current operational fleet has declined due to the decommissioning of older vessels, the service is executing massive modernisation plans worth billions to project power across the Indo-Pacific region.

In October 2025, the Defence Acquisition Council (DAC), chaired by Defence Minister Rajnath Singh granted Acceptance of Necessity (AoN) for procurement of Landing Platform Docks (LPD), 30mm Naval Surface Guns (NSG), Advanced Light Weight Torpedoes (ALWT), Electro Optical Infra-Red Search and Track System and Smart Ammunition for 76mm Super Rapid Gun Mount for the India Navy.

The Navy's requirement for LPDs was long known, with a Request for Information (RFI) floated in 2021, calling for four 200-meter-long vessels with electric propulsion and the capacity to embark 900 troops. The RFI required the LPDs to have a through deck capable of accommodating helicopters of various types, making the ship a Landing Helicopter Dock (LHD) rather than an LPD. The ship was also required to be armed, with 16 anti-ship missiles and 32 Vertical Launch Short Range Surface-to-Air Missile (VLSRSAM).

According to news reports of September 23, 2026, the Indian Navy has issued a RFI for procuring six Landing Craft Utility (LCU) MK-V vessels under the 'Make in India' initiative, signalling a major push towards strengthening the country's amphibious warfare, logistics support and Humanitarian Assistance and Disaster Relief (HADR) capabilities. The proposed vessels are expected to significantly enhance the Navy's ability to transport troops, heavy equipment and military vehicles across India's vast maritime theatre, particularly in the strategically important Indian Ocean Region.

The RFI has been issued to Indian shipyards to promote indigenous shipbuilding and increasing domestic participation in the naval modernisation programmes. The procurement is planned under the Buy (Indian-IDDM) category, which places a strong emphasis on indigenous design, development and manufacturing. Shipyards responding to the RFI are required to provide details regarding indigenous content and domestic industrial participation.

According to the naval requirements outlined in the RFI, each LCU MK-V vessel will have an overall length of approximately 85 metres and a displacement of around 1,500 tonnes, with an allowable variation of 15 per cent. These specifications indicate a substantially larger platform than the Navy's existing LCU MK-IV vessels, enabling greater payload capacity and extended operational reach. The vessels are to be powered by diesel propulsion systems and will be required to achieve a maximum speed of at least 15 knots. While speed remains important for tactical mobility, the greater emphasis appears to be on endurance and payload capacity, allowing the platforms to sustain operations over extended distances across the IOR.

The key requirement of endurance of approximately 4,500 nautical miles represents a major increase over the endurance available on the existing MK-IV class, providing the Navy with a much greater ability to support long-range deployments, distant island territories and prolonged maritime operations without frequent replenishment. The vessels are expected to operate effectively in Sea State 3 conditions while retaining survivability up to Sea State 7, highlighting the Navy's intention to ensure that the platforms remain capable of functioning across a wide spectrum of maritime environments, including adverse weather conditions in during monsoons and open-ocean operations.



India is advancing indigenous amphibious aircraft capabilities with (top) 'SeaRover' Amphibious Hybrid Aircraft and; (above) Autonomous Amphibious Cargo Aircraft named 'Eureka'.

Each LCU MK-V will be designed with a planned service life of 30 years. For amphibious missions, the platform will be capable of carrying at least four Main Battle Tanks (MBTs), four BMPs and 190 fully equipped troops. This combination of armour, mechanised infantry and personnel transport capability provides considerable operational flexibility during expeditionary operations, island reinforcement missions and rapid military deployments. This ship-to-shore capability remains one of the most critical requirements for amphibious warfare, allowing armed forces to rapidly establish a presence in coastal areas and island territories when required.

This ship-to-shore capability remains one of the most critical requirements for amphibious warfare, allowing armed forces to rapidly establish a presence in coastal areas and island territories when required

Beyond traditional military roles, the new LCUs will also perform logistics support missions to India's island territories. This function has become increasingly important given the strategic significance of the Andaman and Nicobar Islands and other remote locations that require regular transportation of personnel, supplies, vehicles and engineering equipment. The platforms will also support Exclusive Economic Zone (EEZ) patrol duties. This means the vessels can contribute to maritime domain awareness, coastal security operations and the protection of India's maritime interests across vast stretches of sea. Search and Rescue (SAR) missions and Humanitarian Assistance and Disaster Relief (HADR) remain another major driver behind the requirement. India's growing role as a regional security provider has led to increasing deployments of naval assets for disaster response across the IOR.

The ability to transport large quantities of relief supplies, engineering equipment, medical teams and emergency personnel can prove invaluable following cyclones, tsunamis, floods and other natural disasters. The requirement also reflects changing strategic realities in the Indian Ocean Region. India's island territories occupy critical positions near major international shipping routes, and the Navy requires robust sealift capabilities to rapidly reinforce these locations whenever necessary. Larger and more capable landing craft can help maintain operational readiness across dispersed maritime assets.

The Indian Navy currently maintains a sealift and beaching capability split between a flagship dock, conventional landing ships, and smaller utility craft: INS Jalashwa (LPD) features a floodable well deck capable of launching mechanised landing craft (LCMs), has a flight deck that operates up to six medium helicopters, and can embark over 1,000 troops along with full armour squadrons; four indigenous Shardul-class Landing Ship Tanks (LSTs) and the older Magar-class ship (INS Gharial) primarily designed for direct beaching operations to deploy tanks, armoured vehicles, and troops; eight indigenous Mk IV class Landing Craft Utility (LCUs) stationed primarily under the Andaman and Nicobar Command - these 830-tonne vessels transport up to 160 troops and MBTs for quick-reaction beaching and island security.

With the four next-generation LPDs planned to be procured for the Indian Navy, costing INR 80,000 crore, India is moving from a tactical beaching force to a strategic blue-water expeditionary fleet to counter the growing presence of the Chinese People's Liberation Army Navy (PLAN) in the Indian Ocean. Moving past the original 20,000-tonne proposals, these next-gen warships will feature a displacement of over 32,000 tonnes each. They are expected to be powered by Integrated Full Electric Propulsion (IFEP) systems and will carry robust defensive/offensive armaments, including 32 VL-SRSAM) and 16 Surface-to-Surface Missiles (SSM). They will be equipped to operate fixed-wing naval drones, collaborative combat aircraft, and unmanned underwater vehicles (UUVs).

The next-generation LPD programme entered technical evaluation in 2026, with leading domestic shipyards like Mazagon Dock Shipbuilders Limited (MDL), Cochin Shipyard Limited (CSL) and Larsen and Toubro (L&T) positioned as the key contenders to build them indigenously. The Navy's RFI to procure six additional larger Landing Craft Utility (LCUs) displacing around 1,500-tonnes will be near double the size of current LCUs, capable of carrying 4 MBTs tanks and maintaining an endurance of 4,500 nautical miles.

Plans are also moving forward to acquire six high-speed landing craft (285 tonnes) to facilitate rapid-assault special operations. To bolster coastal security, search-and-rescue, and island logistics, the Navy has issued an RFI to wet-lease four amphibious aircraft capable of land and water take-offs. Concurrently, India is advancing indigenous amphibious aircraft capabilities: Hindustan Aeronautics Limited (HAL) is developing amphibious version of the Dornier 228; Bengaluru-based Aspera Industries is designing an autonomous amphibious cargo aircraft named 'Eureka', built for a 1,000-kg cargo capacity with a 2,000-km range utilising existing waterways as runways. Bengaluru-based AlphaX Aerospace is working on the 'SeaRover' amphibious hybrid aircraft for dual civilian and defence roles.

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India's Aircraft Carrier Dilemma: Why the Navy Needs a Third Carrier

A carrier should be seen as an important component of a wider maritime strategy, not as a substitute for other naval assets. The government must now decide if India needs a genuine three-carrier force or merely two carriers with one replacing an ageing platform.

PHOTOGRAPHS: PIB, Dassault Aviation

■ MANISH KUMAR JHA

AS CHINA EXPANDS ITS carrier fleet and strengthens its presence across the Indo-Pacific, India must resolve its long-standing aircraft carrier debate. The challenge is not simply to build another warship, but to establish a sustainable carrier strategy that balances operational needs and technological ambition. This is equally about competing defence priorities as well.

India's aircraft carrier debate has reached a point where prolonged indecision could become a strategic liability. The Indian Navy (IN) has two aircraft carriers, INS Vikramaditya and INS Vikrant, but that does not mean it can maintain two carriers at sea or guarantee a continuous naval aviation presence on both the eastern and western seaboards.

The distinction is important. Aircraft carriers are among the most complex and demanding military platforms to operate. They require regular maintenance, periodic refits, aviation upgrades, crew training and among others. When one carrier enters a prolonged maintenance cycle, the operational burden falls on the other. So, a force of two carriers therefore offers limited flexibility, particularly when India has to monitor two major maritime theatres.

INS Vikramaditya, the refurbished former Soviet-era Kiev-class carrier, has been in Indian service since 2013. INS Vikrant, commissioned in September 2022, represents a much bigger achievement: India's ability to design and construct an aircraft carrier domestically under Project 71.

Together, these ships have given the Navy an important carrier-borne aviation capability. But two carriers cannot guarantee uninterrupted coverage of the Arabian Sea and the Bay of Bengal while retaining sufficient capacity for maintenance and contingencies.

It would also provide greater flexibility during a crisis in the western Indian Ocean and the eastern maritime theatre.

The western seaboard connects the country to the Persian Gulf, the Gulf of Aden and the wider Arabian Sea, while the eastern seaboard leads to the Bay of Bengal and the strategically important approaches to the Malacca Strait. Both theatres are increasingly important for India's energy security, commercial shipping, and broader regional interests.

The Indian Ocean is no longer a relatively uncontested maritime space. China's expanding naval presence, growing submarine operations and overseas bases have increased its ability to operate far beyond the neighbourhood.





(Above) The Indian Navy showcasing its formidable maritime capabilities with a spectacular display of multi-carrier operations with two Aircraft Carriers INS Vikramaditya and the indigenously built INS Vikrant; (Left) The recent agreement for the procurement of 26 Rafale-M aircraft will enhance the Navy's fleet, with these jets capable of operating from both carriers.

China's Carrier Ambitions and India's Maritime Challenge

China's carrier programme has entered a new phase. The commissioning of its third aircraft carrier, Fujian, on November 5, 2025, marked an important milestone in the modernisation of the People's Liberation Army Navy.

Unlike the Liaoning and Shandong, Fujian has a flat flight deck and electromagnetic catapult launch technology, known as EMALS. It is designed to operate more sophisticated aircraft, including the J-35 stealth fighter and KJ-600 airborne early-warning aircraft.

Fujian's commissioning should not, however, be confused with full operational maturity. Integrating its aircraft, developing flight operations to be an effective carrier strike group will take time.

However, the significance lies in the direction of China's naval development. Beijing is investing heavily to project military power and its carrier programme is an important part of that ambition.

Aircraft carriers are so important for the Navy to conduct air defence, maritime strike, surveillance and other missions without depending entirely on access to foreign bases or the availability of land-based airfields.

For India, this flexibility is particularly valuable in the northern Indian Ocean, where strategic developments can unfold rapidly.

The Bigger Question: What Kind of Carrier Should India Build?

The debate over a third carrier is also complicated by the question of design. Should India order another aircraft carrier based on the 45,000-tonne INS Vikrant, with upgradation, or should it pursue a larger, approximately 65,000-tonne vessel equipped with advanced launch technology? The two options reflect different approaches to India's long-term naval ambitions.

A repeat of the Vikrant-class design offers a relatively practical route. Cochin Shipyard has already acquired valuable experience in designing and constructing a carrier of this size. A follow-on vessel would allow IN to use existing infrastructure, retain skilled manpower and continue building a domestic industrial base. Design modifications could incorporate learnings from Vikrant's construction and operational experience, while improving indigenous content and aviation facilities.

It could also reduce the technical risks and uncertainties associated with developing an entirely new class of carrier. For a country still building its indigenous aircraft-carrier ecosystem, continuity has considerable value.

The larger INS Vishal concept, on the other hand, of around 65,000 tonnes, potentially equipped with EMALS and a catapult-assisted take-off but arrested recovery (CATOBAR) configuration, would offer greater flexibility in operating heavier aircraft.

The advantages are significant. Electromagnetic catapults can launch aircraft carrying greater fuel and weapons loads than those generally possible with a ski-jump arrangement.

More importantly, they can support fixed-wing airborne early-warning aircraft, giving a carrier strike group a much wider surveillance capability. Such a platform could eventually operate more advanced naval fighters, unmanned combat aircraft and other aviation systems.

However, technological ambition must be matched by industrial readiness and financial capacity. EMALS, arresting systems, advanced electrical infrastructure and an aviation ecosystem would require substantial investment. There is little value in building a technologically sophisticated carrier if its aviation componentis missing.

There is also an important distinction in the history of the programme. The larger 65,000-tonne INS Vishal concept and the Navy's more recent proposal for a repeat of the Vikrant design are not the same project. The proposal examined by the Defence Procurement Board in 2023 was for a follow-on carrier based on INS Vikrant, with a cost of around ₹40,000 crore.

The larger CATOBAR carrier remains a separate, more ambitious design proposition. India must avoid allowing this design debate to become another reason for postponement. The immediate priority should be to settle the operational requirement and choose a design that can be delivered within a realistic timeframe. A repeat design with improvements may be a more sensible starting point than pursuing an advanced platform whose development could take considerably longer.

The Financial Dilemma: Carriers Versus Army and Air Force Modernisation

An aircraft carrier is not an isolated acquisition. A fully operational carrier strike group requires destroyers, frigates, submarines, fleet support ships, helicopters and a good

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From the Strait of Hormuz to the Indo-Pacific: India's Navy as a Guardian of Energy Security

As India's dependence on imported energy grows and maritime competition intensifies, the Indian Navy's role is expanding beyond protecting sea lanes to safeguarding the economic foundations of the country's security

■ MANISH KUMAR JHA

Representative Images by AI





(Top) Indian Navy deployed warships near Strait of Hormuz to escort Indian Oil and LPG tankers safely home amid ongoing conflict in the region; (Above) Indian Navy thwarts piracy bid in Gulf of Aden as its warships continue to navigate a volatile West Asia on multiple fronts.

INDIA'S ENERGY SECURITY NOW depends not just on oilfields, pipelines and diplomacy, but also on the safety of the sea routes that carry its vital supplies. From the narrow waters of the Strait of Hormuz to the busy shipping lanes of the Indo-Pacific, the uninterrupted movement of oil, liquefied natural gas (LNG) and other critical commodities has become a strategic priority for New Delhi.

As maritime threats grow, the Indian Navy is playing an increasingly important role in protecting the country's energy supplies including substantial imports of natural gas. As much evident, during the ongoing Iran-US conflict, any prolonged disruption to maritime trade can have consequences far beyond the energy sector. Higher oil prices can impact the import bill, fuel inflation, and put pressure on the rupee.

Largely, then, it will affect industrial growth. A blockade, military confrontation or sustained threat to commercial shipping could therefore quickly become a national economic challenge. India's energy security is, in effect, inseparable from the security of the sea lanes that connect it to global markets.

The Strait of Hormuz: How Vulnerable?

Few maritime chokepoints illustrate this criticality more clearly than the Strait of Hormuz. The International Energy Agency's February 2026 assessment of the Strait of Hormuz underlines the scale of the challenge: roughly 20 million barrels of oil per day passed through the Strait in 2025, totalling roughly a quarter of global seaborne oil trade.

Situated between Iran and Oman, this narrow passage connects the Persian Gulf with the Gulf of Oman and the wider Indian Ocean. It is one of the world's most important arteries for oil and gas shipments, carrying a substantial share of global petroleum flows.

The Strait of Hormuz is vital to India because the Gulf region is a major supplier of its crude oil and natural gas. It is also home to millions of Indians whose remittances support the Indian economy.

Any escalation involving Iran, the Gulf Arab states or outside powers could have serious consequences for India, pushing up energy prices and shipping costs, raising insurance premiums, disrupting trade and putting Indian nationals in the region at risk.

The challenge is not limited to a complete closure of the Strait. Even a credible threat of disruption can cause commercial shipping companies to reconsider routes, raise freight charges and demand higher war-risk insurance premiums. Tankers may continue to sail, but at a greater cost and underuncertainty.

India cannot control the political and military dynamics of the Persian Gulf. It can, however, improve its ability to monitor maritime developments, protect its shipping interests, respond to emergencies and coordinate with international partners. This is where the Indian Navy's operational reach becomes indispensable.

From Anti-piracy Patrols to Energy Security

The Indian Navy's contribution to maritime security has evolved considerably over the past two decades. Anti-piracy deployments, escort operations, maritime surveillance and humanitarian assistance have strengthened its capacity to operate widely across the region.

The Indian Navy's contribution to maritime security has evolved considerably over the past two decades. Anti-piracy deployments, escort operations, maritime surveillance and humanitarian assistance have strengthened its capacity to operate widely across the region.

During the 2023–24 Red Sea crisis, attacks by Yemen's Houthi militants on commercial ships disrupted one of the world's busiest shipping routes. Many shipping companies diverted vessels away from the Bab el-Mandeb Strait and the Suez Canal, sending them around the Cape of Good Hope. The longer journey added days to transit times and drove up fuel consumption and shipping costs.

India responded by intensifying naval surveillance and deploying ships in the Arabian Sea and adjoining waters. The Navy's operations included assistance to merchant vessels facing attacks, responses to distress calls and efforts to reassure commercial shipping.

The response highlighted an important distinction: protecting maritime trade does not always require entering a conflict. Persistent surveillance, rapid response, professional seamanship and coordination can help reduce risks without drawing India into a wider military confrontation.

The lesson extends well beyond the Red Sea. Energy security requires a navy capable of responding to threats across a broad maritime geography, often before they reach India's immediate approaches.

2026: When Energy Security Becomes an Operational Mission

The developments of 2026 have brought this challenge into sharper focus. The deteriorating security environment in the Persian Gulf has required India to strengthen its monitoring of merchant vessels, protect seafarers and coordinate maritime responses across government agencies.

India's submission to the United Nations in March 2026 highlighted the launch of Operation Urja Suraksha, under which 11 Indian Navy units had been deployed in the western Arabian Sea by March 13 to protect maritime trade.

The operation highlighted the Navy's growing role in protecting commercial shipping, ensuring the uninterrupted flow of energy supplies. But securing these vital routes requires more than naval deployments.

The Directorate General of Shipping, the Ministry of External Affairs, Indian diplomatic missions and shipping companies must work together to assess threats and safeguard Indian interests. In March, the government said 28 Indian-flagged vessels were operating in the Persian Gulf, carrying hundreds of Indian seafarers.

Such coordination is critical because the threats to shipping are changing. Conventional naval confrontations are only one part of the problem. Missiles, drones, attacks by terrorists and pirates, electronic interference and disruption of navigation can all endanger commercial vessels.

The Indo-Pacific: Energy Security Beyond the Gulf

India's energy vulnerability does not end at Hormuz. India's maritime interests stretch beyond the Arabian Sea to the Bay of Bengal and the waters around the Malacca Strait, a key passage linking the Indian and Pacific oceans.

The Indo-Pacific is vital to global energy trade, with tankers carrying crude oil from West Asia to major Asian economies and ships transporting LNG, refined petroleum products and other goods across the region. Much of this traffic passes through narrow maritime chokepoints, making shipping vulnerable to conflict, blockades and disruptions.

The Strait of Malacca is particularly important. Any disruption to this busy passage could affect energy supplies and trade across much of Asia, with consequences extending well beyond the region.

Any disruption there would affect shipping between the Gulf and East Asia, with implications for regional economies and global supply chains. For India, the security of these eastern approaches matters a lot for energy imports.

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India's Aircraft Carrier Dilemma...

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number of carrier-borne aircraft. Thus, the strongest argument against a third carrier is its cost. The expenditure continues throughout the vessel's operational life, covering maintenance, upgrades, training, logistics and the replacement of ageing equipment.

At a time when the Indian Army needs modern artillery, air defence systems, drones, and the Indian Air Force faces the grave challenge of replenishing its fighter squadrons, allocating tens of thousands of crores to another carrier will also invite questions.

But the argument that a carrier will divert resources from the Army and Air Force also needs to be examined in the context of long-term defence planning. Carrier construction is a long-gestation programme, with expenditure over several years rather than incurred in a single financial year.

The Parliamentary Standing Committee on Defence made this point in its 36th Report, presented in March 2023. It observed that carrier maintenance could take between six months and two years, depending on the nature of the refit. It also noted that the process from planning to full operationalisation could take 10–15 years. The committee recommended that the government take a final decision, propose a clear roadmap and begin planning for a third carrier.

There is also an industrial dimension. Building another indigenous carrier would sustain expertise developed at Cochin Shipyard and support a wider network of Indian engineering, electronics, steel, propulsion and defence companies. The experience gained from INS Vikrant should not be allowed to dissipate.

Crucially, carrier construction is not simply about producing one warship; it is about retaining the ability to design, integrate, and build complex naval platforms.

The government's task is to establish a funding model that accommodates this long-term investment without compromising the modernisation needs of the other two services.

The Real Concern: Delays and the Absence of a Clear Roadmap

Perhaps the most troubling aspect of India's carrier debate is the prolonged decision-making process. The proposal for a second indigenous aircraft carrier has been discussed for years, yet a firm construction decision has remained elusive.

The DPB examined the repeat-carrier proposal in September 2023. However, subsequent public reporting has continued to point to uncertainty over its approval and the government's preferred fleet structure.

By the time a new carrier enters service, INS Vikramaditya may be approaching the end of its operational life. This is precisely why India needs a long-term carrier acquisition policy rather than isolated procurement decisions.

The construction of INS Vikrant demonstrated that India could overcome the technological, engineering and industrial challenges of building an aircraft carrier. But the next carrier will also require years of design finalisation, infrastructure preparation, construction, sea trials and aviation assets.

The Parliamentary Standing Committee's estimate of 10–15 years from planning to full operationalisation should serve as a warning. Every year of indecision pushes the potential induction date further into the future.

The government must therefore move beyond repeated assessments and establish a clear timeline. The Navy's requirement, the MoD's assessment and the government's financial priorities must conclude a decision.

Carriers Cannot Operate in Isolation

There is another argument that deserves attention. The nature of naval warfare is changing rapidly. Long-range anti-ship missiles, advanced submarines, unmanned systems, satellite-based ISR and precision-guided weapons have made large surface combatants vulnerable in waters.

China's growing anti-access and area-denial capabilities underline the risks of operating expensive naval platforms within the reach of hostile missile systems.

Aircraft carriers are not invulnerable, and their effectiveness depends on the strength of the entire carrier strike group

The Andaman and Nicobar Islands also offer considerable strategic advantages. Their location near the western approaches to the Malacca Strait makes them important for monitoring maritime traffic and operational reach in the eastern Indian Ocean

A carrier should be seen as an important component of a wider maritime strategy, not as a substitute for other naval assets.

The government must now resolve three questions. First, does India want a genuine three-carrier force or merely two carriers with one replacing an ageing platform? Second, should the next carrier be an improved Vikrant-class vessel or a larger platform equipped with EMALS? Third, how can the programme be financed without undermining the Army's and Air Force's urgent modernisation requirements?

These questions require an assessment by the Navy, the MoD, the Finance Ministry and thepolitical leadership. They should not remain trapped in an endless cycle of interdepartmental consultations.

India has already demonstrated that it can build an aircraft carrier. The challenge now is to demonstrate that it can plan and sustain a carrier programme over several decades.

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From the Strait of Hormuz to the Indo-Pacific...

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This is where the Navy's role must extend beyond the immediate protection of Indian merchant vessels. Here, India's Information Fusion Centre–Indian Ocean Region (IFC-IOR) provides an important foundation by facilitating information exchange with partner nations and international organisations.

Additionally, the government has also highlighted the Navy's mission-based deployments and its long-running anti-piracy operations as key elements of regional maritime security.

India's approach must remain consistent with freedom of navigation, international law and respect for the sovereignty of coastal states.

A Stronger Navy Needs a Stronger Maritime Ecosystem

The expanding responsibilities of the Indian Navy raise an important question: does India have the maritime capabilities and supporting infrastructure needed to protect its energy lifelines during a prolonged crisis?

Naval ships and aircraft are essential, but they are only one part of the answer. India needs persistent maritime surveillance, long-range maritime patrol aircraft, unmanned aerial systems, secure satellite communications, anti-submarine capabilities, among others. Likewise, Tankers and other commercial vessels must be able to communicate with authorities, report suspicious activity and receive assistance without delay.

Equally important is the ability to sustain naval deployments over extended periods. Protecting shipping across the western Arabian Sea, the Gulf of Aden and the eastern Indian Ocean requires a balanced fleet, sufficient personnel, maintenance capacity and access to strategically located support facilities.

Energy security is a national responsibility, and its protection requires a common operating picture that connects military surveillance with commercial shipping information.

Indian Navy has also focused on AI-based maritime surveillance, automated identification of suspicious vessels, satellite-based monitoring and secure data-sharing systems.

Strategic Autonomy at Sea

India must also navigate a delicate diplomatic balance. Its interests in the Persian Gulf are too substantial to permit indifference to regional instability, yet its strategic autonomy requires avoiding rivalries between major powers.

Indian Navy's mission has been based on protecting maritime commerce, deterring threats to Indian shipping while operating within international law. This is different from undertaking offensive operations on behalf of another country or becoming a participant in every regional confrontation.

However, the safety of Indian seafarers must remain central to this approach. They are often the first to face the impactof regional conflict, even when their vessels have no direct connection to the dispute. Protecting them is both a humanitarian obligation and a responsibility to the country's commercial and energy interests.

From Protecting Ships to Protecting the Economy

The Strait of Hormuz and the wider Indo-Pacific may appear to be separate theatres, but they are connected by the same strategy: India's economic future depends on the constant movement of goods across the sea.

A disruption in the Gulf can raise energy prices; instability in the Red Sea can lengthen shipping routes; and a crisis in the eastern Indian Ocean can affect trade with East Asia. These risks are interconnected, and India's response must be equally comprehensive.

The Indian Navy is well placed to serve as a guardian of the country's maritime energy lifelines. But this responsibility requires more than periodic deployments or crisis-driven operations. It demands sustained investment, modern capabilities, regional partnerships.

As a former Naval Chief said: "That is a whole-of-government approach that links naval power with energy planning and commercial preparedness."

From Hormuz to the Indo-Pacific, the Indian Navy's mission is becoming inseparable from the country's broader quest for strategic autonomy.

In a world where energy, trade and geopolitics increasingly align at sea, protecting the maritime commons is an essential condition of India's economic security and its ambition to emerge as a leading Indo-Pacific power. The Indian Navy is at the core of this foundation.

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