

THE *VIKRANT* AIRCRAFT CARRIER REBORN: INDIAN NAVY'S 'ATMANIRBHARATA' ENDEAVOUR COMES OF AGE

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Abstract

The commissioning of the Indian indigenously built aircraft carrier INS VIKRANT is a seminal event in the long and illustrious history of the Indian Navy. The occasion also marks the maturing of India's warship designing and construction capacity; and is indeed a watershed moment for an 'Atmanirbhar Bharat' aspiring to be a technological leader through self-reliance and indigenisation. The new VIKRANT follows in the wake of its older namesake, and consequently has the duty of living up to its gallant legacy scripted in battle. The VIKRANT fills a critical capacity-gap in the Indian Navy's maritime security matrix by ensuring that one carrier task force is available on each seaboard of India. However, considering the tenuous geostrategic situation in India's proximate maritime neighbourhood — with increasingly discomfiting prospects of Chinese permanent naval presence in the Indian Ocean — it is most essential that India possess a bare minimum of three aircraft carriers for uninterrupted operational availability of two carrier task forces to effectively address the emerging challenges in its areas of maritime interests.

Keywords: Atmanirbhar Bharat, Atmanirbharata, Indian Navy, IAC, VIKRANT, Vikramaditya, Liaoning, Shandong, Fujian

"An aircraft carrier is the central platform for protecting and projecting naval power at and from the sea."

— *Indian Maritime Doctrine-2009*¹

The Indian Navy's first indigenously built aircraft carrier, INS *VIKRANT* was commissioned on 02 September 2022 by the honourable Prime Minister of India, Shri Narendra Modi. This event at Kochi marked an extremely significant milestone in the comprehensive modernisation endeavour of the contemporary Indian Navy; and is the grand culmination of an indigenisation effort in warship designing and building, that was set in motion in the 1970s. The initial results of the indigenisation effort in warship building were, of course, already discernible with

¹ Indian Maritime Doctrine-2009 (INBR-8), p. 125.

successful commissioning and operation of six frigates of the *Nilgiri* Class through the 1970s and 80s. The large number of domestically designed and built modern warships commissioned since then — missile destroyers, frigates, corvettes, landing ships, survey ships, offshore patrol vessels and auxiliaries — present a shining testimony to the ever-increasing Indian capability in this domain. It is, therefore, in the fitness of things that the highest point of India's indigenous warship designing and building achievement in the form of the *Vikrant* comes in the 75th year of India's independence, when the country is celebrating the *Azadi Ka Amrit Mahotsav*.

This red-letter day has, indeed, been a long time coming — a full 17 years since the formal steel cutting commenced in April 2005 at the Kochi Shipyard Limited, a public sector company. But the period of waiting cannot detract from the sense of national euphoria that surrounded the occasion, because this herculean task, involving umpteen agencies in a first-ever project of this type and scale, has never been attempted before, and successfully accomplished thereafter. It was a 'first-in-Class' project, requiring an extensive 'whole of nation' approach — involving both the public sector and the private one — through a proactive '*Atmanirbharata*' push. Since, it entailed systematic adoption of import-substitution for humongous types and quantities of equipment, components, assemblies and sub-assemblies through domestic resources and indigenous means, a certain degree of time and cost overruns were certainly expected — and did, indeed, occur. However, the Indian Navy now proudly showcases its own domestically designed and built aircraft carrier — one with 76 per cent indigenous content.

Major Characteristics of the *Vikrant*

The *Vikrant*, which cost Rs 19,341 Crores² — about \$ 2.76 Billion at the average rate of Rs 70 to a US Dollar — to build, has an overall length of 262 meters (m) and displaced some 43,000 tonnes. The ship has a Short Take-Off But Arrested Recovery (STOVAR) configuration which enables the running launch of fighter aircraft from its ski-jump and effecting their landing by a set of arrestor wires. Its four gas turbine engines can propel the ship to a maximum speed of 28 knots.³

The ship is equipped with state-of-the-art sensors, self-defence weapons, and a whole slew of specialised equipment, to progress its primary task of efficient airwing operations. The *Vikrant* will operate the MiG-29K carrier-based fighter aircraft for the immediate present — as does the *Vikramaditya* — but this may be augmented/replaced by the domestically manufactured naval version of the Light Combat Aircraft (LCA-Navy) in the not-too-distant future. A few other known details of the *Vikrant* carrier are placed at Table 1.

² Press Information Bureau, "Hon'ble President witnesses Naval op demo and visits IAC Vikrant," 22 December 2021, <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1784218>

³ Press Information Bureau, "Curtain raiser Commissioning of indigenous aircraft carrier", 25 August 2022, <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1854457>

Length Overall	262 m
Beam	62 m
Draught	8.4 m
Height	8.53 m
Displacement	~43000 Tons
Propulsion System	4 x GE LM 2500 gas turbines, 80 MW total power; 2 shafts
Ski Jump Angle	14 ⁰
Fighter Aircraft	24 x MiG 29K; Possibly LCA (Navy)
Helicopters	6-8 Helicopters (Kamov-31 AEW, MH-60R Multi-role, ALH)
Range	7500 nm
Maximum Speed	28 knots
Economical Speed	12 knots
Unrefuelled Endurance	45 days
Crew	About 1600

Table 1: The *Vikrant* – Technical Details
Source: pib.gov.in

Before being handed over to the Indian Navy on 28 July 2022, the ship underwent four sets of sea-trials over a one-year period — the first and the most publicised one in August 2021, and the fourth on 10 July 2022. Post commissioning, the fighter aircraft take-off and landing trials are expected to commence in November 2022. The new *Vikrant* with modern systems and aircraft will surely give a good account of itself as the centrepiece and command platform of the Indian Navy’s carrier battle group (CBG). In that regard, it is certainly instructive to note the past legacy of the old *Vikrant* — the gallant warrior its name suggests — which the new *Vikrant* would surely like to emulate one day, in the service of the nation.

Old *Vikrant* – Heroic Saga of Valour⁴

The Royal Navy aircraft carrier, HMS *Hercules* was acquired from the United Kingdom in March 1961 and renamed *INS Vikrant*. The Eastern Fleet, centred upon the *Vikrant*, totally decimated all air and surface opposition along the erstwhile East Pakistan’s coastline in the Bay of Bengal, during the Bangladesh liberation war of 1971. Having successfully evaded the trap attempted by

⁴ GM Hiranandani, *Transition to Triumph: History of the Indian Navy 1965-75* (New Delhi: Spantech & Lancer, 2000), Chapter-7, <https://www.indiannavy.nic.in/sites/default/files/Transition-to-Triumph-07Apr16.pdf>

the Pakistani submarine *Ghazi* — which incidentally lies as a wreck off Visakhapatnam — the *INS Vikrant*-centred Eastern Fleet arrived off East Pakistan's coast, just at the commencement of hostilities on 04 December 1971.

The *Vikrant's* Alizé anti-submarine warfare aircraft carried out numerous rocket attacks and strafing strikes by day and night on Chittagong harbour, Cox's Bazar, and the riverine ports of Chalna, Mongla and Khulna. Enemy gun boats, merchant ships, barges, tugs, and smaller riverine craft, were either sunk or totally immobilised. Runways and airfield installations at Chittagong and Cox's Bazar airports were also bombed. By the evening of 07 December 1971, complete air superiority over that part of East Pakistani coastline had been achieved.

When it was apprehended that a Carrier Strike Group centred upon the *USS Enterprise*, which was known to be rushing towards the Bay of Bengal, may intervene in support of Pakistan's war effort; a renewed sense of urgency towards the earliest possible conclusion of the Indian naval campaign, gripped Indian planners and executors alike. A golden chapter in the gallant history of the *Vikrant* and its airwing was scripted on 12 December 1971 when heavy bombing of runways and installations at Chittagong and Cox's Bazar airports was repeatedly undertaken by the day and night sorties of Sea-Hawk fighter aircraft, to render these airports totally unusable by any type of aircraft. Ships leaving harbour were also attacked by the rocket fire of Sea-Hawks. By the time *INS Vikrant* left the area for refuelling on 14 December 1971, the Pakistani military in East Pakistan, facing a comprehensive rout by the Indian Army and Air Force attacks, was on the verge of a spectacular defeat — and surrender.

While the use of air wing of *INS Vikrant* was obviously instrumental in hastening Pakistani military's defeat, another role of the *Vikrant*-led Eastern Fleet, namely, the establishing of contraband control and enforcing a blockade of East Pakistan, additionally proved to be vital in isolating East Pakistan logistically from the sea. No enemy warships could approach East Pakistan's ports to reinforce the beleaguered Pakistani forces for the entire period of hostilities. No cargo ships or tankers for logistic support of Pakistani military were allowed to enter harbour. In sum, the *Vikrant* carrier battle group of the Indian Navy covered itself in glory — surpassing all expectations and greatly contributed to the Pakistani Army's mass surrender and final outcome of Bangladesh's liberation.

The old warhorse, the *Vikrant*, was finally decommissioned in 1997 and became part of India's historical martial folklore; and the new *Vikrant* has been 'reborn' to follow in its gallant footsteps. Since the indigenous building of a ship of the size and complexity of an aircraft carrier is a clear indicator of a country's warship building prowess coming of age; the achievement of this niche capability has naturally been monitored across the globe. China, in particular, has closely followed the Indian aircraft carrier programme, since two of its own carriers — the *Liaoning* and the *Shandong* — were refitted/built and commissioned in the same timeframe as the construction of the Indian carrier *Vikrant*. It would certainly be quite interesting to survey a portion of the Chinese media-discourse on the Indian aircraft carrier programme.

Chinese Views on India's Aircraft Carrier Programme

While prior to 2012, China projected the absence of an aircraft carrier in its navy quite vociferously, going to the extent of stating that it was the only country out of the five permanent members of the United Nations Security Council not possessing one;⁵ its stance changed significantly post the induction of the *Liaoning*. The narrative progressively shifted to the need for the PLA Navy to possess up to six aircraft carriers by 2030, commensurate with its expanding role of 'far-seas protection'.⁶ The future trajectory of the Chinese aircraft carrier programme notwithstanding, the present PLA Navy carriers would be no match against the US aircraft carriers' combat capabilities, because they are essentially 'Fleet Air Defence' carriers.

Since India is also building 'Fleet Air Defence' carriers in the contemporary timeframe, the Chinese somehow feel compelled to be in a competitive mindset of sorts on this account. This probably explains the close watch kept by the Chinese media on the Indian carrier programme and the occasional articulation of views thereon, which decidedly have a critical slant. A 2017 article titled '*What can China learn from India's aircraft carrier strategy?*' argued that the Indian aircraft carrier development had not been 'a plain sailing'. This point was further elaborated thus:⁷

"Today India's military ship production is of a primary scale, although the reality in the Indian shipbuilding industry still features small production capacity, backward process and weak infrastructure. Therefore, India isn't capable of independent carrier R&D and manufacturing yet." (sic)

The article, quite unflatteringly, went on to state that "...the Indian navy's dream of having three aircraft carriers has fallen flat because it overestimated its R&D capability and the country's overall strength, and undertook an excessively massive strategy that eventually got stranded."⁸ Yet another Chinese article, citing a military expert, posited that India's home-made aircraft carrier could not compare with Chinese ones, as the country had taken a leap in construction and other core technologies like construction material, flight deck (including ski-jumps), and radar systems. It was also contended that India still relied on other countries' technologies — mainly those of Russia and Israel — in building its aircraft carrier; and that "INS *Vikrant* was more likely an assemblage of foreign technologies rather than being made by India."⁹

The overt criticism mentioned above notwithstanding, recent media articulations do grudgingly acknowledge the fact that India's aircraft carrier project has comprehensively improved India's scientific and technological level and stimulated the development of many

⁵ Embassy of the People's Republic of China in the Republic of Zimbabwe, "Despite gaining aircraft carrier, China to stick to defensive military policy: Army newspaper," 29 October 2011, <https://www.mfa.gov.cn/ce/cezw//eng/xwdt/t845206.htm>

⁶ Global Times, "PLA Navy to have at least 5 carriers: experts," 06 December 2018, http://english.chinamil.com.cn/view/2018-12/06/content_9369401.htm

⁷ China Military online, "What can China learn from India's aircraft carrier strategy?," 03 October 2017, http://english.chinamil.com.cn/view/2017-03/10/content_7522620.htm

⁸ Ibid.

⁹ China Military online, "China's domestically made aircraft carrier better than India's: military experts," 23 January 2018, http://english.chinamil.com.cn/view/2018-01/23/content_7917747.htm

projects supporting national defence. The main points that are somewhat appreciative of the Indian effort, are as follows:¹⁰

- (a) India has become the sixth country that can build its own aircraft carriers; and the induction of the *Vikrant* will enhance its image.
- (b) It will enable India to promote its ‘two-ocean strategy’ by being deployed on the country’s eastern seaboard.
- (c) Once the *Vikrant* attains full operational capability, it will also be an important support point for India’s ‘Eastward Strategy’.

Finally, a recent Chinese article published a couple of days after the *Vikrant* was handed over to the Indian Navy — on 28 July 2022 — sought to engage in a media warfare of sorts by commenting rather disparagingly that India’s aircraft carrier programme had suffered from policy instability, changes in design thinking, instability in funding, and lack of continuity in the manufacturing process. It also tried to highlight the capabilities of Chinese carriers — both commissioned and under construction — vis-à-vis those of the *Vikrant*. Salient aspects of this comparison may be summarised as follows:¹¹

- (a) There was a big gap between the *Vikrant* and China’s third aircraft carrier, the *Fujian*, which was launched in June 2022.
- (b) By 2022, China had launched three aircraft carriers; and the slow pace of India in building its first indigenous aircraft carrier exactly validated the complexity of the construction process.
- (c) The *Liaoning* was a large carrier while the *Vikrant* was only a medium-sized one. The *Liaoning* had stronger carrier-based aircraft capabilities than did the *Vikrant*.
- (d) While China can design whole aircraft carrier by itself, India could only do partial-design due to its relatively weak military industrial base.

Irrespective of these Chinese viewpoints on the Indian aircraft carrier programme, there is no denying the fact that this is a stupendous achievement of India’s naval warship design organisation, and the ‘large and complex shipbuilding’ capabilities of the Indian shipyards. Since the Chinese analysts alluded to the *Vikrant*-based carrier strike force enabling India to engage in ‘two-ocean strategy’ in support of the country’s eastward push, a brief investigation into the future direction of the Indian aircraft carrier programme towards furthering the security of India’s maritime interests, is certainly in order.

¹⁰ China National Defense News, “India’s first domestically built aircraft carrier is about to enter service,” 24 May 2022, http://www.81.cn/w-j/2022-05/24/content_10157328.htm. This article was published in Chinese language and has been translated with the assistance of ‘Google Translate’ application. Some nuances may have changed during the translation process.

¹¹ Global Times, “India’s first indigenous aircraft carrier delivered to navy; ambition displayed despite gap with China,” 30 July 2022, <https://www.globaltimes.cn/page/202207/1271758.shtml>

Future Direction of the Indian Aircraft Carrier Programme

A Carrier Battle Group (CBG) provide a country with great flexibility in terms of deployment and role options — be these in the primary combat-role of projecting power at and from the sea, or for military diplomacy, or even in the benign ‘humanitarian assistance and disaster relief (HADR) role. In the military role, CBGs are best exploited in executing sea control over large oceanic spaces by undertaking sustained presence operations. The threat of use of a multi-domain force acts as a huge deterrent factor. Should that still not convince the adversary, then the CBG must bring its enhanced combat power to bear over the entire range of operational tasks, incorporating extended reach and rapid response capability, so as to achieve the desired operational outcome.¹²

CBGs are also excellent instruments of ‘strategic communication’ and ‘coercive diplomacy’. This facet is visible in ample measure in the continued deployment of the US Navy’s CSGs in the western Pacific Ocean — more specifically in the South China Sea and off Taiwan — in the precarious contemporary geostrategic environment currently prevailing there. As for HADR post a calamitous event, the plentifulness of resources on board aircraft carriers — in terms of logistics, air transportation, casualty evacuation, search and rescue, manpower, medical, power generation and the like — make them ideal platforms for benign roles, when required. Their usefulness in the aftermath of the Indian Ocean *tsunami* of 2004 was proven beyond a shadow of doubt.¹³

While the Indian aircraft carriers may not be designed for power projection (strikes against heavily defended targets ashore) in the comprehensive manner that the US carrier task forces (CTF) do, the maritime strategic geography of India necessitates that at least two CBGs be always operationally available to ensure comprehensive maritime security across both, its western and eastern seaboard. Considering the long repair, refit, and maintenance cycles of warships — even longer in case of aircraft carriers — it is imperative that India possess a minimum of three aircraft carriers to meet this critical capacity. Admiral Karambir Singh, the erstwhile Chief of the Naval Staff, emphasised the absolute necessity of this in very clear terms during a press conference on the eve of Navy Day in 2020.¹⁴ The same criticality was reiterated by Vice Admiral MA Hampiholi, the Flag Officer Commanding-in-Chief of the Southern Naval Command in the run-up to the commissioning of *INS Vikrant*, wherein he stated that “*the maritime capability perspective plan of the Indian Navy envisages induction of three aircraft carriers...*”¹⁵

The Indian Navy has for long been cognisant of this requirement and has accordingly planned for the construction of a second, follow-on indigenous aircraft carrier (IAC-II) — also

¹² Indian Maritime Doctrine-2009 (INBR-8), p. 125.

¹³ Dan Eaton, “U.S. aircraft carriers rush to aid tsunami zone,” Reliefweb, 30 December 2004, <https://reliefweb.int/report/indonesia/us-aircraft-carriers-rush-aid-tsunami-zone>

¹⁴ Manu Pubby, “Third aircraft carrier absolutely necessary, air power at sea is required here and now: Navy Chief Karambir Singh,” The Economic Times, 04 December 2020, <https://economictimes.indiatimes.com/news/defence/third-aircraft-carrier-absolutely-necessary-air-power-is-at-sea-is-required-here-and-now-navy-chief/articleshow/79544504.cms?from=mdr>

¹⁵ Anirudha Karindalam, “Need three aircraft carriers: Vice Admiral M.A. Hampiholi,” The Week, 21 August 2022, <https://www.theweek.in/theweek/cover/2022/08/20/need-three-aircraft-carriers-vice-admiral-m-a-hampiholi.html>

referred to as the *Vishal*, although it might well end-up being named the *Viraat*. While the formal approval for construction of the IAC-II has not yet been accorded, this carrier is envisaged to be larger in size, have a flat deck in CATOBAR (Catapult Assisted Take-Off But Arrested Recovery) configuration, perhaps nuclear-propelled, and equipped with electromagnetic aircraft launch system (EMALS). Consequently, it will be able to operate a wide variety of fixed-wing aircraft ranging from airborne early warning (AEW) types, to fighters with higher payloads, as also unmanned aerial vehicles (UAV/UCAV). Since it will be a generation above the *Vikrant* (IAC-I) in terms of technologies proposed to be incorporated, the decision to commence construction will need to be a very deliberate one, taken after taking a large variety of factors — including the overall cost, *inter-se* prioritisation vis-a-vis other critical defence hardware, airwing considerations, the extent of the success of India's 'atmanibharata' (self-reliance) programme and the resultant net import-requirement — into account.

However, the myriad challenges — of fiscal, social, technological, administrative types — facing the nation notwithstanding, the imperatives of national security, especially within the maritime domain, must not be lost sight of. The seas are the main lifelines upon which the economic, and societal wellbeing of the people of India rests. A bigger challenge to India's national security — which many tend to underestimate — is the proximate neighbourhood and the tenuous geostrategic environment prevailing therein. Contemporary maritime security literature is replete with predictions about the eventual permanent presence of the Chinese Navy in the Indian Ocean, and the consequent adverse impact that such presence would have on regional security and stability. The fast-paced technology-intensive modernisation of the PLA Navy — especially the recent launch of its EMALS-equipped, CATOBAR-configured, large aircraft carrier, the *Fujian* — only adds to the China threat narrative.

It is also quite well known that India has suffered immeasurably in the past on account of the country's proverbial 'sea-blindness'. The Indian Navy, on its part, is the prime instrument for ensuring the maritime security of India against threats arising at-, through- or from the Indian Ocean. If aircraft-carrier-based task forces are considered to be central to the planning and execution of maritime security paradigm of the Indian Navy, then the decision to build the third aircraft carrier — the *Vishal* (IAC-II) — on priority can brook no further delay.

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