

THIRD AIRCRAFT CARRIER: A RETHINK

PANKAJ DHIMAN

The Royal Navy built the first aircraft carrier in 1918. The most spectacular use of aircraft carriers was by the Japanese on December 7, 1941, against the US Naval Fleet at Pearl Harbour, Hawaii. The aircraft carrier played a prominent role in naval warfare all through World War II. The militaries used 49 fleet aircraft carriers and 24 light carriers of which 26 fleet and 15 light carriers were sunk. Hereafter, the US led the race in this field. However, there were pervasive disagreements on the utility of these big naval ships, primarily due to the exorbitant costs and the vulnerability. When arguing on the necessity of a super carrier in the 1950s, the Chief of Army Staff, US Army, General Bradley, stated, “The Navy’s mission [as agreed to by the Joint Chiefs] was to conduct the naval campaign designed primarily to protect lines of communication leading to important sources of raw materials and to areas of military operations.”¹ He added, “The super carrier was being built for strategic air operations, and that was not the navy’s primary function, and was too expensive.”² The argument was agreed to by

Group Captain **Pankaj Dhiman** is Flying Branch officer of the Indian Air Force (IAF) with more than 2,000 hours of flying. He has been Directing Staff at the Tactics and Air Combat Development Establishment. He has undergone the Staff Course at the Air Command and Staff College (ACSC), Maxwell AFB, USA, and holds a degree of Master of Military Operational Art & Science. He is currently commanding a fighter squadron.

1. Philip S Meilinger, *Bomber, The Formation and Early Years of Strategic Air Command* (Alabama: AU Press, 2012), p. 142.
2. *Ibid.*, p. 142.

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the Chief of Staff to the Commander in Chief General Dwight Eisenhower, and Chief of the Air Staff, US Air Force (USAF), General Vandenberg, who further stated that “the ship was simply unnecessary and a waste of money as the total cost of the carrier, its aircraft, and defensive screen would be \$1.265 billion—8 per cent of the entire annual defence budget. Additionally, the ship was highly vulnerable, and the Navy

was putting all its eggs in one fragile basket.”³

The militaristic and diplomatic significance of an aircraft carrier has historically been part of the military capability discourse. The Indian military establishment entered this fray after the induction of the INS *Vikrant*. With the induction of the INS *Vikramaditya* and indigenous production of the IAC *I*, the argument to acquire a third aircraft carrier has further strengthened. Often viewed as a strategic and impressive military capability, its implications can be counter-productive to the rest of the military due to the constricted capital budget in defence, and the building and operating costs. Additionally, the prevalent security context and operational necessity provide an ideal yardstick for assessing the practical application of an aircraft carrier. *Hence, this paper argues that in the Indian context, with the imminent security obligations, the budgetary constraints, and the evolving character of naval warfare, a third aircraft carrier is an operationally and economically unviable option due to the debatable cost to benefit ratio.*

To evaluate the operational and economic viability of an aircraft carrier, this paper will first dwell on the historical roles of an aircraft carrier as comprehensively collated by Robert C Rubel, and the reasons for the US’ and China’s pursuit of this capability. Thereafter, it would elucidate the prevalent character of naval warfare as defined by eminent naval academician Milan

3. Ibid., p. 141.

Vego and the role of an aircraft carrier in that kind of warfare. Next, it would attempt to acknowledge the arguments by the Indian Navy for a third aircraft carrier, followed with vulnerability and economic analyses of an aircraft carrier. The paper will conclude by providing alternative and more viable means to achieve the same military effects in an Indian context.

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HISTORY AND ROLES OF AN AIRCRAFT CARRIER

Aircraft carriers have followed the progressive contours of naval warfare. In doctrinal roles, aircraft carriers are the key instruments of “Sea Control” and “Power Projection.” Power projection could mean either a one-time strike or sustained operations to prosecute air operations against enemy infrastructure or interdiction and close air support.⁴ Historically, there have been six doctrinal roles of the aircraft carrier. (1) **“Eye of the Fleet:** In this role, the carrier would operate with its own fleet’s battle line interposed between it and the enemy; but without substantial defence of its own as it faced limited risk. However, soon fighter planes that could fight for, and win, air superiority started operating from it, thus, making it an important military target”.⁵ (2) **“Cavalry:** In the fleet battle experiments in the 1930s and throughout most of World War II, the carrier took on the mission of conducting hit-and-run raids similar to cavalry, the most famous being the Doolittle raid on Tokyo in early 1942”.⁶ (3) **“Capital Ship:** In the 1920s, it became clear that with the increasing performance of aircraft, a coordinated attack by a carrier aircraft could sink a battleship before it ever got in the range of one’s own fleet. This notion was validated by the Japanese attack

4. Robert C. Rubel, “The Future of Aircraft Carriers,” *Naval War College Review*, vol. 64, no. 4, Article 4, <https://digital-commons.usnwc.edu/nwc-review/vol64/iss4/4>

5. Ibid.

6. Ibid.

on Pearl Harbour".⁷ However, this expanded their risk profile, and they became consumable. Additionally, "the navies used carriers towards sea control; however, in WWII, as the American fleet approached the Japanese home islands, threats from land-based defences required even greater concentrations of carriers to secure sufficient control of the sea".⁸ (4) "**Nuclear Strike Platform:** Just as in the cavalry and capital-ship roles, its mode of operation was to deliver a pulse of power and then scoot—standing and fighting was a recipe for destruction. The ballistic missile nuclear submarine replaced the aircraft carrier in this role because these presented a negligible risk profile as well as high assurance in this task compared to an aircraft carrier".⁹

The abovementioned role of an aircraft carrier limited its task to the operational domain; however, the next two roles propelled the image of an aircraft carrier to the strategic level. (5) "**Airfield at Sea:** In this role, the concentration of the fleet was an utmost necessity without decisively engaging with the land forces unless conclusively superior, but it significantly depleted its manoeuvrability".¹⁰ "The US aircraft carriers have operated mostly in this role with one exception being the US-Soviet face-off in the eastern Mediterranean in conjunction with the 1973 Yom Kippur War. In this crisis, the three US carrier groups, ready to assist the Israelis with land strikes, faced the numerically superior Soviet Fifth Eskadra positioned to sink or disable the carriers. The aircraft carriers faced tactical defeat having insufficient room to manoeuvre. Therefore, the key to using carriers in the 'airfield at sea' role is to take explicit account of their inability to tolerate risk at all".¹¹ (6) "**Geopolitical Chess Piece:** Since WW II, in a crisis, the move of aircraft carriers demonstrates concern, resolve, or outright resentment. Here too, precisely because they need to be visible in this role and must be ready to function as an airfield at sea, carriers cannot tolerate any significant

7. Ibid.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid

risk”.¹² “With carriers becoming a source of naval power and a yardstick of national prestige, a number of navies are devoting a sizeable proportion of resources to building them without realising the magnification of the role/risk disconnect of these assets in the face of new sea denial threats and shrinking budgets”.¹³

In the prevalent roles, navies are using aircraft carriers as platforms to bring to bear air power against the enemy’s navy and coastal assets where shore-based aircraft cannot reach. These conduct air operations against the enemy navy in terms of engaging surface ships, submarines, and enemy aircraft carriers, and establish sea control. Further, these are also employed for invasions of the enemy territory through the medium of the sea, where aircraft carriers support amphibious landings by bombing enemy defences/airfields and helicopter landing troops/equipment. These are also employed to conduct raids using their integral air component against the enemy’s shore-based military infrastructure without the intention of occupying territory. Finally, navies could use these assets in an anti-shipping role to blockade ports as well as to escort own merchant shipping.

The USA and China are the leading proponents of the aircraft carrier in pursuit of naval prowess. The US is the existing superpower and China the emerging superpower. The maritime domain dominated Indo-Pacific is the geopolitical arena in this contest. Hence, China is firmly trying to establish equivalence to the US naval superiority to dominate in the Indo-Pacific. Both countries perceive the aircraft carrier as the primary symbol of power projection and its acquisition by both countries exhibits similar reasons. First, as a leading tool for operations towards “Open Sea Protection” and “Far Sea Operations.” Second, as an instrument of rapid military posturing and deterrence.¹⁴ Third, to build forward presence and sustenance capability and “showing the flag” and “tip of the spear” against an adversary threatening

12. Ibid.

13. Ibid.

14. Naval Warfare Publication, *Maritime Operations at the Tactical Level of War*, NWP 3-56, edition, December 2015.

their global/out of area national interests.¹⁵ Finally, the People's Republic of China (PRC) sees a direct contest with the US forces in the Pacific. In anticipation of the deployment of at least 4-5 US Navy Carrier Battle Groups (CBGs) in the region, China is planning to operationalise at least 3-4 aircraft carriers (>60,000 T capacity) within this decade to effectively counter the US force.

Historical precedence is inadequate to understand the operational efficacy of a capability. Change and continuity in any type of warfare are crucial inputs to arrive at rational deductions on the necessity of a capability. Hence, to better understand the utility of an aircraft carrier, it is necessary to assess the contours of naval warfare.

CHARACTER OF NAVAL WARFARE AND THE AIRCRAFT CARRIER

Akin to the air domain, technology plays a crucial role in altering the character of naval warfare. Beside technology, the strategic end state that a naval battle has achieved historically influences the contours of naval warfare. In addition, the sea/ocean has no master; hence, the fleet can provide protection to only selected parts of the maritime domain. Therefore, the critical maritime zones of contention are the choke points in the Sea Lines of Communication (SLOCs)—mostly the straits and gulfs—and littoral seas contiguous to strategic land areas like islands, ports, and harbours. Accordingly, the key features of emerging naval warfare, as elucidated by Milan Vego, an eminent naval academician, require deliberation to identify the vitality or futility of an aircraft carrier.

Historically, it is difficult to find a decisive naval battle, and according to Milan Vego, the Battle of Tsushima in May 1905 was the last “decisive” naval battle in history.¹⁶ Accordingly, major naval battles have taken place not on the open ocean but close to the shores bordering the open ocean and in the adjacent seas. The majority of losses of merchant ships as well as submarines in both World Wars have occurred near focal areas of maritime trade and

15. US Navy Program Guide 2015, *Historic Presence, Sailors at “Tip of Spear”*, p. 4.

16. Milan Vego, *On Naval Warfare* (Tidskrift I Sjövasendet), Issue 1, 2010, p. 79.

at the approaches to major commercial ports.¹⁷ Hence, Milan Vego argues that, in the future, war at sea will be fought in the littorals.¹⁸ Littoral warfare differs from war on the open sea because of the small size of the area and the short distances, the shallow water, and the proximity of the continental landmass.¹⁹

The short distance enables successful employment of fixed wing aircraft, helicopters, and Unmanned Aerial Vehicles (UAVs) in the littorals. Air strikes can achieve surprise because aircraft can approach their targets at low altitudes. Shallow water in a typically narrow sea restricts the manoeuvrability of aircraft carriers, large surface combatants, and SSNs (Submersible Ship Nuclear). This also adversely affects the speed of large surface ships because the proximity of the seabed causes the waves to break.²⁰ “The proximity of continental mass and offshore islands allows the side stronger in the air to dominate the theatre to a far greater degree than would a similar ratio in the open seas. The high manoeuvrability and readiness enable aircraft to concentrate their strike against transports, warships, or aircraft covering enemy ships at sea. The aircraft poses the single greatest threat to the survivability of one’s surface combatants in a typically narrow sea”.²¹ The threat posed by the land-based aircraft alone could severely restrict, even preclude, the use of major surface combatants like cruisers, destroyers, and aircraft carriers, unless they operate under strong air cover. Even then, they should not operate too close to the enemy coast and in mine-infested waters.²²

In general, a substantial number of offshore islands allows greater defence in depth and islands situated far off the mainland can provide timely early warning of an impending attack, especially from the air.²³ “The future war at sea will take place in the littorals rather than the open ocean. The primary anti-access capabilities in the littoral derive from land-based fixed wing

17. Ibid., p. 79.

18. Ibid., p. 80.

19. Ibid., p. 81.

20. Ibid., p. 83.

21. Ibid., p. 84.

22. Ibid.

23. Ibid., p. 82.

Aircraft carriers have been employed in operations by the US, French and British Navies during the Vietnam, Falklands, and Iraq Wars, and the Global War on Terror. In all the cases, they were employed at distant locations, not on the shores of the native countries, and were employed against adversaries that had limited military capability and weak air forces.

aircraft and helicopters; conventionally powered quiet submarines; small surface combatants armed with anti-ship missiles, torpedoes, guns; ASCMs launched from ships, submarines, and air; mines; UAVs, coastal missiles; and TBMs".²⁴ Accordingly, in contrast to war at the open ocean, one's naval force cannot be successful in the littoral waters without close cooperation with the other Services ("jointness"), and the air force in particular.²⁵

The features of contemporary naval warfare and the role of the navy towards achieving the strategic end state highlights

certain critical aspects that can put to debate the operational utility of an aircraft carrier. There are 22 aircraft carriers in service with various navies across the world as of today. Aircraft carriers are fundamentally an island or an airfield at sea, and Henry Kissinger once described these as "100,000 tons of diplomacy". Post World War II and the Korean War, aircraft carriers have been employed in operations by the US, French and British Navies during the Vietnam, Falklands, and Iraq Wars, and the Global War on Terror. In all the cases, they were employed at distant locations, not on the shores of the native countries, and were employed against adversaries that had limited military capability and weak air forces.

With naval warfare shifting towards the littorals, the rapid proliferation of offshore and far-off island facilities, and extended ranges of continental firepower, including the aircraft, will degrade the power projection and defensive capability of aircraft carriers. Moreover, with the proliferation of shore-based anti-access firepower, the aircraft carrier is vulnerable to attacks

24. Ibid.

25. Ibid., pp. 84, 88.

from enemy air and sub-surface forces, despite the number of submarines and surface ships always deployed with it for its protection. The enhanced Maritime Domain Awareness (MDA) with multiple sensors, including satellites, makes it easier to detect an aircraft carrier. Once sighted, it gets involved in the battle of survival more than any other role and it is only a matter of time before opposing militaries sink or functionally paralyse it. This will have a significant impact on the morale of the Services and the nation as a whole. Further, the role of an aircraft carrier was critical in the times when

shore-based aircraft did not have the reach to strike at enemy infrastructure and tackle threats in the high seas. That is no longer the case. Strategic bombers have ranges in excess of 12,000 km and availability of island-based facilities and Air-to-Air Refuelling (AAR) increase them further.

The shift in the character of naval warfare and modern navies is summarised by Milan Vego who states, "The trends over the past two decades indicate a shift in the focus from the open ocean to operations in the littorals. Blue water navies are becoming smaller, dispersed, lethal, and stealthier but more capable in terms of their ability to operate further from home base and project power far into the interior of littorals."²⁶ Also, modern technologies will allow the weaker sides in the littorals much greater anti-access capabilities.²⁷ In this foreseeable change, there is a strong possibility that an aircraft carrier, instead of becoming a strategic strength could become a strategic liability. In this operational condition, it would be pertinent to examine the argument for a third aircraft carrier for the Indian Navy.

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26. Ibid., p. 90.

27. Ibid., p. 90.

INDIAN NAVY'S ARGUMENT FOR THIRD AIRCRAFT CARRIER

The Indian Navy sees a third aircraft in its inventory as the key capability toward achieving the status of a blue water navy. The Indian Navy advocates the need of a third the aircraft carrier to fulfil India's responsibility as a net security provider in the Indian Ocean Region (IOR) region and for safeguarding its own territory in the light of the fast-growing naval capabilities of the People's Liberation Army Navy (PLAN). In addition, the navy considers the possession of three aircraft carriers essential to ensure the availability of at least two carriers at any given time in the eventuality of contingencies.²⁸ According to Admiral Arun Prakash (Retd), an aircraft carrier has the ability to provide a mobile and organic aviation platform at sea for providing tactical air support, with the ability to hit targets much beyond the fleet's range.²⁹ Secondly, it has the ability to respond swiftly to any geographic location at any given time. Lastly, to deliver ordinance at sea or shore, while the force itself remains outside the enemy's danger zone.³⁰ This seems debatable as it presumes that the adversary has no, or weak, land-based air power, and that the navy has a critical mass of air power. The critical mass in the Indian context would have to account for Pakistani and Chinese land-based air power and, hence, have to be significantly high. Also, by virtue of its inherent characteristics, for this critical mass to concentrate and be available for operations against land targets, would take significant time even in a best case scenario, by which time, its actions or lack thereof may well be rendered redundant.

While refuting the counter-argument of shore-based aircraft, Admiral Prakash posits that "the process of requisitioning the air effort from the Air Force is complex and time-consuming. The range and endurance of shore-based aircraft is limited. Thirdly, in today's crowded maritime environment, obtaining identification of Beyond Visual Range (BVR) targets for missile

28. MP-IDSA, *Should India Build a Third Aircraft Carrier?* Virtual Panel Discussion, January 18, 2022, p. 1.

29. Ibid., p. 5.

30. Ibid.

release poses serious difficulties.”³¹ While reflecting on developing defence infrastructure on island territories, Admiral Prakash opines that beside environmental implications such infrastructure is vulnerable to enemy attack due to its static positioning, and stationary air bases are easily targetable as compared to a mobile aircraft carrier.³² In his rebuttal to arguments about the vulnerability of a carrier, Admiral Prakash states that a number of counter-measures like interception missiles fired from ships and high energy interceptors, use of smart decoys and hard kill measures, and unmanned combat aerial vehicles offer sufficient protection to the carriers.³³ Finally, there is a prevailing argument of the aircraft carrier being even more significant during peace-time, as a conventional deterrent.³⁴ This was advocated by Admiral S Sinha (Retd) by citing two examples of Indian aircraft carriers’ operations. During the Sri Lankan crisis, the INS *Vikrant* was on standby to extricate President Jayawardane in case he was threatened by the Liberation Tigers of Tamil Eelam (LTTE), and during Op Parakaram in 2001-02, the presence of an aircraft carrier with 22-23 ships off the Makran coast worried General Musharraf.³⁵

In contrast, Rear Admiral S Shrikhande (Retd) mentions that aircraft carriers may not last long in future warfare to justify their deployment and the excessive costs.³⁶ He further emphasises that “aircraft carriers are not central to India’s strategic objectives in the maritime domain and there is a necessity of a balanced approach towards more effective use of the two aircraft carriers that India possesses instead of building a third aircraft carrier.”³⁷ The naval arguments though exhibit a plausibility: the cost and vulnerability analysis, and alternative means of achieving the tasks typically conducted by an aircraft carrier would definitely present an operationally viable alternative.

31. Ibid., pp. 5-6.

32. Ibid., pp. 2, 6.

33. Ibid., p. 6.

34. Ibid.

35. Ibid., p. 8.

36. Ibid., p. 10.

37. Ibid.

COST AND VULNERABILITIES OF AN AIRCRAFT CARRIER

The aircraft carrier is the largest and most complex of all warships and, in most cases, the most expensive. In addition to the cost of the ship, the cost of the embarked air wing must be considered, not to mention the extensive logistics and training infrastructure needed to keep carriers operating. A recent Naval Postgraduate School study has shown that in the US Navy, approximately 46 per cent of the personnel are either assigned to, or supporting, its carriers.³⁸ The cost of an aircraft carrier has been persistently debated in the past over the advisability of investing in carriers.³⁹ In the Indian context, in view of the existing budgetary constraints and other more important security obligations, the cost of an aircraft carrier and inflation due to cost overruns make it an unviable option.

The indigenously built INS *Vikrant* (IAC-1) is a great step towards self-reliance and its quoted cost is approximately \$2.9 billion (Rs 20,000 crore) without the aircraft component. With the induction of the fighter component and other operational and logistical prerequisites, this cost may further increase to approximately \$5 billion (close to Rs 35,000 crore). The situation is different if we conduct a cost analysis of a third proposed carrier, the INS *Vishaal* (IAC-II) which is at the conceptual stage. An aircraft carrier could cost \$6-8 billion and with the addition of the aerial component, the cost may reach \$16-17 billion (more than Rs 1,00,000 crore at present conversion rates), that too at current prices.⁴⁰ Hence, without considering the operating and future upgradation costs, the third aircraft carrier with all its operationally essential assets would surely cost roughly \$15 billion. Additionally, at such prohibitive costs, 70 per cent of the carrier resources would still be committed to its air defence, leaving extraordinarily little for long range strikes.⁴¹ Moreover, various open sources (including a US General Accounting Office Report of August 1998) state that the pure investment costs in a nuclear powered

38. Rubel, n. 4.

39. Ibid.

40. M Matheswaran, "A Third Ac Carrier for India: Budget vs Necessity", *India Defence & Security*, October 13, 2020, pp. 2-3.

41. Ibid., p. 4.

aircraft carrier may be approximately \$5-6 billion with operating/life-cycle costs even higher.⁴²

In comparison, the Arihant class submarine costs somewhere between \$2.9-3.0 billion⁴³ (the navy can acquire close to five such submarines at the predicted cost of the INS *Vishaal*). Thirty-six 5th Generation Rafale aircraft, along with all the weapons, equipment, and supporting infrastructure had cost approximately \$ 8-9 billion (close to 55 such aircraft with full combat capability are purchasable at the predicted cost of the INS *Vishaal*, and this number would further increase if this money is spent on indigenous dual use aircraft development and production—a win-win situation for the Indian Air Force (IAF) and Indian Navy (IN). Moreover, the navy already has a great deal of construction commitments with regard to the Scorpene project, the Arihant class SSBN (Ship Submersible Ballistic Nuclear) and Ship Submersible Nuclear (SSN) submarines which require large monetary allocations.⁴⁴ In addition, the IAF is well below its minimum operational strength of 42 squadrons, and the Indian Army (IA) is still waiting for its long pending infantry weapons, artillery, and strike corps modernisation requirements.⁴⁵ Thus, it is reasonable to appreciate these steep costs in the backdrop of the overall military capability.

To develop a comparative perspective on the cost and operational benefits of an aerial platform over a large warship, reference of a raging debate in the Australian defence forces over platform procurement towards sea denial is worth considering. As per a write-up in the *Australian Democrat*, “a single B-21 can cover over 5,000 km to deliver about 10 x Long Range Anti-Ship Missiles (LRAshM) per mission with much lower risk to the platform in comparison to a warship, and can carry out repeated missions of such an intensity day after day to provide sea denial 360 degrees from

42. Reports to Congressional Requesters, *Navy Aircraft Carriers—Cost Effectiveness of Conventionally and Nuclear Powered Carriers*, US General Accounting Office, August 1998, pp. 8-10.

43. Shreya Mundhra, “Boosting Indian Navy’s Firepower, DRDO Launches Nuclear Submarine with ‘Vertical Launch Systems’”, *The Asian Times*, January 2, 2022. Accessed on February 6, 2023.

44. n. 28, p. 7.

45. Matheswaran, n. 40, p. 3.

Disruptive concepts and technologies are likely to challenge the economic and operational viability of aircraft carriers. Modern technology developments have enabled the possibility of more agile and faster ships, submarines, a spectrum of unmanned vehicle technologies—be they aerial, surface, underwater or autonomous.

a central location or distributed bases in and around Australia.”⁴⁶ Further as per Australian defence experts, “If Australia had a squadron of 12 × B-21s, it could dispatch a flight of three aircraft carrying around 30 × LRashM or 50 × guided bombs in the morning and follow it up with another sortie in the afternoon.”⁴⁷ In cost comparison, it is claimed that “9 × B-21s instead of 9 × frigates (Hunter class) will result in a saving of \$ 36 billion and will provide much better defence, high survivability, superior responsiveness, reach, and, of course, tremendous

operational flexibility towards achievement of sea denial.”⁴⁸ While this comparison is not against an aircraft carrier *per se*, but a frigate class, it nevertheless highlights cost and survivability advantages of an aerial long ranged platform over a surface warships in achieving sea denial against a powerful navy attempting to operate away from its own shores and closer to the adversary’s. And that is the scenario faced by India today.

The history of the aircraft carrier, as discussed earlier, broadly highlighted its growing vulnerabilities. Disruptive concepts and technologies are likely to challenge the economic and operational viability of aircraft carriers. Modern technology developments have enabled the possibility of more agile and faster ships, submarines, a spectrum of unmanned vehicle technologies—be they aerial, surface, underwater or autonomous. Artificial Intelligence (AI) influenced concepts such as swarm drones could make these the most crucial element in naval warfare that could endanger big warships like carriers at

46. Australian Democrats, 2022 Platforms, democrats.org.au/2022-platforms/defence/#b-21-raiders. Accessed on November 2, 2022.

47. Tanmay Kadam, eurasianimes.com/after-nuke-submarines-us-open-to-provide-b-21-stealth-raider/, *The Eurasian Times*, August 25, 2022. Accessed on November 2, 2022.

48. n. 46.

a minimal cost.⁴⁹ Advanced integrated air defences, enhanced electronic warfare, cyber and space-based technologies, and asymmetric tactics create a seamless MDA that assures detection of an aircraft carrier and jeopardises its safety.⁵⁰ The deployment and proliferation of sea denial technologies, including state of the art anti-ship ballistic and cruise missiles, integrated and layered sensors and targeting networks, long range bombers, advanced fighter aircraft, submarines, and mines exponentially

raise the risk to large warships like aircraft carriers.⁵¹ The sinking of the Russian missile cruiser *Moskva* during the ongoing Russia-Ukraine conflict, reportedly struck by two Ukrainian R-360 Neptune anti-ship missiles⁵², is a prime example of the high vulnerability of large warships in contemporary maritime warfare.

Specifically, anti-ship ballistic missiles like the DF-21F intermediate range ballistic missile, fitted with a manoeuvring re-entry head that has an anti-ship seeker built into it, causes fires and damage to the air wing and topside structure, thus, achieving a “mission kill”.⁵³ The barrage of the same could render any aircraft carrier ineffective.⁵⁴ More importantly, one of the aspects related to the presence of a CBG in the open seas is “its effect on the neutral powers” and, thus, a strategic consequence. Sir Julian Corbett rightly observed in this regard, “It may be taken as a law of maritime warfare, which cannot be omitted from strategic calculations with

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49. Matheswaran, n. 40, p. 4.

50. T.S. Rowden, Commander, Naval Surface Forces, *Surface Force Strategy: Return to Sea Control*, p. 6.

51. *Ibid.*, p. 6.

52. Congressional Research Service, *Russia's War in Ukraine: Military and Intelligence Aspects*, Updated September 14, 2022, p. 12.

53. Rubel, n. 4.

54. *Ibid.*

impunity that every step toward gaining command of the seas tends to turn neutral powers into enemies.”⁵⁵

With regard to shore-based and island facilities, multiple options of layered active and passive defences, and measures like mobility of assets/dispersal provide adequate safeguards from enemy action. These facilities would have a number of early warning sensors and adequate counter-measures, with no limits of payload to counter an impending threat. Moreover, these facilities would have complementing facilities within the operational range of their combat assets as an alternative in a contingency.

ALTERNATIVE OPERATIONALLY VIABLE AND COST-EFFECTIVE MEANS

In the Indian context, Lieutenant General Satish Dua (Retd) posits that India is not looking for power projection far away from its shores like the USA and China.⁵⁶ But India should look at its deployment in tandem with its strategic partners as India is not the only country affected by the growing Chinese presence in the IOR.⁵⁷ Further, the argument about the necessity of a third aircraft carrier further weakens due to ample alternative and cost-effective options. Shore-based aircraft with air-to-air refuelling have ranges in excess of 2,500 km. Use of a friendly country's airfields on islands in the IOR for staging will increase this even further. For instance, the Su 30 MKI has a combat range of more than 1,500 km when operating at mid-altitude and combined with the stand-off capability of the BrahMos missile, it can cover the entire area in depth up to the Malacca Strait and Strait of Hormuz. IAF aircraft based in the Andaman and Nicobar Command (ANC) can even cover the South China Sea.⁵⁸ The weight of attack possible by land-based aircraft is much greater than that carried by the aircraft of a carrier which has limited offensive capability. Accordingly, Lieutenant General Satish Dua emphasises the importance of utilising operational

55. Vego, n. 16, p. 85.

56. n. 28, p. 9.

57. Ibid., p. 9.

58. Ibid., p. 7.

capabilities from the island territories in the Andaman and Nicobar (A&N) and Lakshadweep Islands.⁵⁹

The late General Bipin Rawat, India's first Chief of Defence Staff (CDS) remarked that "anything on the surface can be picked up by satellites and knocked off by missiles, and the Navy needs more submarines than aircraft carriers which require their own armadas of protection."⁶⁰ This aspect was further emphasised by Lieutenant General Satish Dua (Retd) by saying that "even more than an aircraft carrier, we need the right mix of ships and submarines till such time India becomes a Rs 5 trillion economy and is able to afford the third aircraft carrier."⁶¹ Moreover, the logic of anti-access is: defeat one ship, or a few, and you defeat them all. Indeed, the US commanders are deeply worried about "saturation missiles attacks" of this type.⁶² A simple counter to that is to boost the combat firepower of every submarine and surface ship, including cruisers, destroyers, littoral combat ships and even amphibious transports, and create a dilemma in the mind of the adversary commander of "what to attack".⁶³ This will definitely boost survivability and preserve combat power.

The military fraternity can draw an interesting and innovative alternative option from the Falklands War. The Falklands War demonstrated a joint and prompt effort to gather 'critical mass' of air power. Royal Air Force (RAF) Harriers and crew embarked on the carrier and were cleared for deck operations. These aircraft undertook strike duties, while Royal Navy (RN) Sea Harriers did Air Defence (AD) duties. The British forces effectively and in an innovative manner used these expensive air assets though by forced jointness in a crisis. The reverse applies in the Indian scenario. In the best of circumstances (both carriers fully fuelled, and air wing embarked), the IN's carriers might take at least 14 days before they can sail to a position close enough to influence land operations against Pakistan. Consequently,

59. Ibid., p. 9.

60. Ibid., p. 4.

61. Ibid., p. 10.

62. James Homes, "Distributed Lethality: The Navy's Fix for Anti-Access", Warontherocks.com, January 19, 2015, p. 5.

63. Ibid., pp. 5-6.

The Pakistan Navy has only a limited number of capital ships that the IAF can neutralise using maritime strike aircraft. The navy needs to build up its MDA and provide shepherd aircraft for such targeting.

the expensive assets would effectively be unutilised or irrelevant to the military campaign (against Pakistan) and only be available for fleet AD. Thus, there is a case for a mutually compatible fighter fleet with the IAF (with appropriate, compatible procurement) to focus more on maritime and land strikes for which the core expertise vests with the IAF. This

will keep the IN fighter fleet for its core task, while ensuring that the IAF component is used flexibly from deck or land (based in the island territories, peninsula, or Gujarat). This would provide a viable and cost-effective alternative means, fitting well within the security context and budgetary constraints.

Specifically, against Pakistan there is a number of alternative means. The IAF can address the coastal defences and airfields, and submarines can achieve blockade of the Pakistan Navy. The Pakistan Navy has only a limited number of capital ships that the IAF can neutralise using maritime strike aircraft. The navy needs to build up its MDA and provide shepherd aircraft for such targeting. The Pakistan Navy's surface vessels would not be in a position to threaten the Indian Navy or merchant shipping. The Pakistan Air Force might try to disrupt shipping through air strikes. The diversion of friendly shipping down south as part of the Standard Operating Procedure (SOP) can thwart this and the IAF can also deny use of Long Range Maritime Patrol (LRMP) and the maritime strike aircraft by interception with shore-based aircraft. The major threat posed by the Pakistan Navy will, thus, be from its submarines and Sea-Launched Cruise Missiles (SLCMs), against both, while an aircraft carrier would be of limited use.

Specifically, against the PRC, there is no intention of going across to attack its eastern seaboard with our CBG. The biggest threat of disruption of the SLOCs by China is from its submarines, followed by its air force, and last, by its surface ships. For the PLA Air Force (PLAAF) aircraft to

interfere, it has to have a sufficient number of LRMP aircraft to detect and identify Indian shipping. The IAF can thwart this threat by deploying the Airborne Warning and Control System (AWACS) in the Bay of Bengal and improving the surveillance capability at the A&N Islands. Further, China does not have the capability to wield a surface action group against Indian shipping. The PRC's surface vessels and CBGs cannot sail through the "chicken's neck" of the Straits of Malacca,

Lombok, and Sunda without being vulnerable to Indian submarines and air interdiction. Once again, submarines emerge as the biggest threat. Finally, the ultimate recourse of aircraft carrier proponents is to take on the Chinese CBG in open water far away from the Indian landmass. But there are inherent flaws in this argument. If the PLAN CBG is so far, is it worth attacking? Even if it is worth attacking, is it worth the risk to go "force on force" with an IN CBG vs a PLAN CBG, far away from the advantage of shore-based air cover? These questions need serious deliberations; after all, the last carrier vs carrier battle happened in World War II.

India does not have overseas stations, territories or interests that warrant the power projection of an aircraft carrier. Pakistan and China do not pose a threat that warrants an additional aircraft carrier to defend our interests.

CONCLUDING ANALYSIS

The paper clearly brought out that "an aircraft carrier concentrates force and does not distribute it", and in contemporary warfare, this is a huge tactical drawback with strategic consequences. At present, the IN has one aircraft carrier in service, with another one inducted recently, which are adequate to meet India's strategic obligations. India does not have overseas stations, territories or interests that warrant the power projection of an aircraft carrier. Pakistan and China do not pose a threat that warrants an additional aircraft carrier to defend our interests. The shape of the Indian peninsula that juts out into the IOR and the island chain of Andaman and Nicobar (A&N) and Lakshwadeep and Minicoy (L&M) give the IAF shore-

based aircraft adequate reach to protect the area of our interest with the navy's MDA. Thus, development of these islands for undertaking full scale military operations is a more viable investment.

The IAF's Su-30 MKI, Rafale and Jaguar armed with long range strike weapons, and similar shore-based air power pose a credible threat to any enemy maritime surface vessel or CBG that enters the IOR. Additionally, in the prevalent security context, an investment in flexible fighters, preferably developed indigenously, that can operate on land and on the aircraft carrier as per the operational requirements would be an operationally viable and economically acceptable initiative. Investing in the third aircraft carrier, an asset with a possible cost of more than Rs 100,000 crore as of today, weighed against its employability, is a large investment. The IN, therefore, needs to focus on the development of submarines and anti-submarine measures and enhancing the firepower capability of all its surface and sub-surface ships/vessels.

Finally, to ascertain the right choice of investment, the military fraternity must face two entwined questions dispassionately: where is the highest probability of conflict—continental zone or maritime zone? Thus, where should investment be the most—continental area of influence or maritime area of influence? The rational decision on budgetary priorities is in the prism of the security context, operational priorities, and acquiring credible combat capability for winning future wars.