

Aircraft Carriers and India's Naval Doctrine

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Introduction

Epic sea battles between aircraft carriers have not recurred after World War II; in the post-war period, most carriers began to retire without even having participated in a battle. Many countries that possessed carriers or were aspiring to get them thus began to re-assess the military-strategic utility of such platforms in the radically altered global geo-strategic environment. The operational concept incorporating carriers also came under the scanner due to the risk to these high-value assets by the proliferation of sea-denial platforms and weapons. For example, the acquisition of submarines by Indonesia and Pakistan in the mid-1960s led to India's employment of INS Vikrant with much hesitation.¹ Whether the enormous financial investment needed to acquire and operate a carrier can be justified against its need has been another contentious issue. Notwithstanding these protracted debates over the years, the *aircraft-carrier* has still not followed the *battleship* into oblivion.

Merely on the basis of reduced employment of aircraft-carriers in the recent past, or by a casual reckoning of the shifting offence-defence balance against these platforms, it may be perilous to infer that aircraft-carriers are redundant in contemporary times. The current regional geo-political and security environment is marked by ambiguities and uncertainties. It is still unclear as to what kind of world order will emerge after the bipolar one ended with the Cold War. The only certitude is that

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the process will involve substantial geo-political competition wherein the possibility of military conflicts, albeit of short duration, cannot be discounted. Furthermore, given the shifting global focus to the Indian Ocean-Pacific Ocean (from the Pacific-Atlantic combine), the competition is more likely to manifest in this region. Coupled with India's expanding vital interests, such a regional environment may necessitate a carrier capability. This paper aims to examine this need and assess the related operational-level and tactical aspects of carrier operations in the Indian context.

Strategic Imperatives

The Asia-Pacific is largely a maritime-configured region. Therefore, there is much rationale for a regional power like India to possess a carrier capability. Even if India could obtain access to extra-territorial air-bases for use by its land-based aircraft, it may not be prudent to factor such bases, since these may not be made available in the most critical occasion due to geo-political factors. There are numerous possible scenarios wherein a carrier capability would be indispensable; some of them are as follows:

- **In Support of Land Battle:** The concept of using a carrier to support a continental war is not alien to India. During the 1971 operations for liberation of Bangladesh, the aircraft onboard INS *Vikrant* was employed very successfully to strike strategic targets deep inside the erstwhile East Pakistan. It is important to note that as long as much of India's land boundary (stretching from north-west to north-east) remains disputed, the potential of a border conflict, and thereby the likelihood of such a need, will persist.
- **Security of Sea-Lines of Communication (SLOC):** In the event of a military conflict, a carrier is the only naval asset that can provide a comprehensive protection to merchant shipping carrying strategic commodities to India. The Indian naval chief recently expressed apprehensions on the future vulnerability

of energy imports through the Strait of Hormuz due to China's strategic "foothold" in Pakistan's Gwadar port, as part of its overall "String of Pearls" strategy.² Like Gwadar, many other locations ("pearls") in the Indian Ocean littoral dispersed along the arterial shipping routes bear a similar potential. Owing to the ongoing diversification of energy sources away from the Persian Gulf area, these distant SLOCs are also assuming strategic significance for India.

- **Maintaining Influence in IOR:** India's security is directly linked to and closely enmeshed with that of the Indian Ocean and the adjoining littoral region (IOR)—the area of its primary strategic interest. The Chinese "pearls" in the Indian Ocean, besides addressing Beijing's strategic vulnerability in terms of its energy imports is likely to be aimed at "displacing" India's influence in the IOR. A possible Chinese politico-military intervention in the region will seriously impinge on India's security. In that sense, a carrier can best bestow on India a capability to maintain its influence in these waters and achieve a strategic "dissuasion" against any inimical extra-regional power.
- **Safeguarding Vital Interests Overseas:** Carrier aviation will enable India to safeguard its strategic interests overseas, not only in the IOR but also beyond. India's economic/strategic stakes are conspicuously increasing in Afro-Asian states, many of which are plagued by political, socio-economic and ethnic instabilities. Besides, many Indian citizens are working in these countries, and past events have amply demonstrated how their lives and property can be jeopardised. New Delhi will need to safeguard these interests in conjunction with the host nations. When the operational situation so warrants, it may be preferable to carry out precision air-strikes to "soften" the target before inserting ground forces, since to do otherwise may lead to avoidable casualties. The Gulf wars conducted by the US are instructive in this regard. Even if its own interests are not directly endangered, India may

need to meet its international obligations by participating in a peace-enforcement operation under the aegis of the UN.

- **Security of Island Territories:** Integral naval aviation is essential for defence of India's far-flung island territories, particularly the Andaman and Nicobar Islands (A&N) that lie more than 1,000 km from the Indian mainland. These islands are also extremely vulnerable due to their geographical spread, and the fact that most of these are uninhabited. The possibility of foreign military occupation or claim may be unlikely in the foreseeable future, but cannot be ruled out altogether. The take-over of the Falklands Islands by Argentina was also considered a remote possibility until it actually occurred in 1982. By all indicators, high-value naval/air assets are unlikely to be based in the A&N Islands. This makes the aircraft carrier indispensable, even as a deterrent.

- **Non-military Missions:** Although the concept of a carrier is essentially centred on its military role, such a platform would substantially increase India's operational options to respond to a natural disaster in the regional seas or littoral. While it has begun inducting large sealift platforms with integral helicopters like the INS *Jalashwa* Landing Platform Dock (LPD), a disaster of a large magnitude may necessitate the employment of a carrier. Akin to a floating city, a carrier can provide virtually unlimited sealift, substantial airlift and all conceivable essential services ranging from freshwater to electric supply, and medical to engineering expertise. There is an effort to further enhance the usefulness of a carrier for such roles, such as by incorporating a modular concept. It incorporates modular spaces/containers carrying specialised personnel, engineering equipment, medical facilities, etc., which can be rapidly deployed for specific missions.³

Not the least important is the employment of a carrier to fulfil the politico-diplomatic role of the navy. The large platform is an awesome

symbol of national power. Its overseas missions and port-calls, when used with prudence and in a non-threatening pose, can yield intangible, but substantial, dividends to the country.

Air Power: Sea-based versus Land-based

The recent past is witness to quantum advancement in aviation technologies, leading to the induction of “fourth-generation-plus” aircraft by many countries, including India (SU-30 MKI). Their intrinsically enhanced flight endurance is further augmented by in-flight refuelling capability. It may therefore seem that land-based air-power can meet any of the aforesaid strategic objectives, which hitherto necessitated carrier-borne air operations. However, the following considerations indicate otherwise:

- Aerial refuelling has its own operational constraints, such as in terms of safety of the tanker-aircraft.
- The “time on task” of a land-based aircraft in the conflict zone would be significantly less than that of its sea-borne counterpart.
- Carrier-borne aircraft are better able to maintain combat efficiency, in contrast to the lengthy transit of land-based aircraft, which would degrade crew efficiency by the time the aircraft reached the conflict zone/ “task” area.⁴
- Positioning the carrier in close geographical proximity to the conflict zone enables the commander to better monitor the changing operational scenario and execute timely measures.⁵
- In case of some scenarios like a military conflict across the land border, the targets may lie well within the striking range of land-based strike aircraft. However, employment of carrier-based aircraft will be necessary to present an element of surprise and uncertainty to the adversary.

- For India to defend its widely dispersed island territories, carrier-based aviation may be a more cost-effective option as compared to land-based aircraft, which would need elaborate supporting infrastructure. Besides the airfield, it will need an air-surveillance radar chain, a fixed anti-submarine sensor network, fuel stores, ammunition depots, and so on.
- In many cases, as compared to an airfield, a carrier is less vulnerable to the enemy's pre-emptive strike due to its mobility.

The Weak Case Against Carriers

The arguments against a carrier essentially revolve around the increasing operational vulnerability of such a high-value platform, which is bound to be a focal target for an adversary's military strategy during war. It is true that a carrier is more prone to detection today due to the advent of spaced-based surveillance, unlike in the past when it could "hide" in the vast expanse of the ocean. It is also stated that once detected, it is also more assailable to sea-denial forces than hitherto. This assertion may however be too simplistic, and does not reckon the inherent defences of a carrier taskforce. The *raison d'être* of a carrier is to establish *sea-control* (including air-dominance) in a sizable area around it, with its precise size being contingent upon the threat perception and the forces at the carrier's disposal. This implies that before a carrier is put to sea, it must be capable of sanitising all possible threats (in all dimensions) in the sea-control area. The case against the carrier also pertains to some specific threats, which are examined and accounted for later.

The hype on insecurity of a carrier largely stems from a larger fear – if the carrier is lost to the enemy, it would not only severely and irreversibly degrade the nation's military capability, but will also lead to a major symbolic dent to its morale and pride: after all, nowhere in the annals of military history has the loss of a single asset to the enemy, including that of the battleship, ever been so damaging to national interest. The following accounts for the oft-stated arguments against the carrier and their inherent weakness.

Vulnerability to Anti-Ship Missiles has Increased

The new generation anti-missiles like *Exocet*, *Harpoon* and *Moskit* are characterised by increasing lethality in terms of their speed; sea-skimming flight profile to evade the targets radar; sophistication of its Electronic Counter-Counter Measures (ECCM) to evade ship's "soft-kill" defences, and so on. However, the technological effectiveness of defence has also increased substantially, almost in tandem with the offence.

Besides, considering that the adversary is likely to resort to concentration of force to "saturate" its defences, tactical doctrines have been re-oriented accordingly to bolster the defence. For example, it has now become necessary to destroy the launch-platform before it launches the missile. The platform could be a warship or a maritime patrol aircraft, like the P-3C Orion operated by Pakistan. It could also be a submarine, which is examined later in greater detail. The value of "organic" aviation of a carrier here lies in the availability, at virtually immediate notice, of a means to search and positively identify distant hostile platforms, and thereafter "kill" these, before a missile launch. This makes the carrier-borne aircraft in anti-air, anti-ship and anti-submarine roles imperative, to protect not only the carrier and its escorts, but also other units operating in the area.

To cater for the possibility that the destruction of launch platform is not achieved, the many subsequent layers of defence directed at destruction of the incoming missiles are facilitated by the various sensors on the carrier taskforce units, including those of the carrier-borne Ka-31 helicopters that provide a continuous Air Early Warning (AEW) cover.

Furthermore, a carrier's inherent battle-damage resistance is often underestimated. History has shown that large ships are significantly less vulnerable than small ships and can withstand high degrees of damage without loss. Even if a carrier is hit by one or two missiles, this is unlikely to affect even its fighting efficiency, let alone its ability to come back to harbour or to stay afloat.

Vulnerability to Submarines has Increased

In the increasing “transparency” of maritime battlefield brought about by space and information technologies, the intrinsic attributes of underwater medium have undoubtedly provided an edge to the submarine. It is however important to note that an aircraft carrier can bring to bear substantial anti-submarine capabilities to prosecute the enemy submarine, much greater than what any taskforce devoid of a carrier can do. According to one account of the 1971 Indo-Pak war, had INS *Vikrant* (with its *Alize* anti-submarine aircraft) not been deployed in the Bay of Bengal, the Pakistani submarines would not have been so successful in the Arabian Sea. (One of these sank even INS *Khukri*.)⁶

The induction of underwater-launched long-range missiles by the submarines of India's potential adversaries has presented a more serious threat. The *Exocet* (on Pakistan's *Agousta*-class), *Klub-S* (on Chinese *Kilo*-class) and *YJ-8-2* (on Chinese *Song*-class) are capable of striking a carrier at extended stand-off ranges. However, the employment of such capability must necessarily be preceded by precise location of the carrier through the submarine's radar or electronic support measures (ESM). A submarine is severely constrained here, since this would require it to come to the surface/periscope-depth, making it vulnerable to detection and prosecution. Even if it does so, due to the limited height of its radar/ESM mast, its “horizon” for electronic search/tracking is extremely limited in relation to the maximum range of its missile.

Ties Down Substantial Forces in Escort Role

It is true that a carrier never sails in a “hostile” environment without numerous consorts in escort role to cater for a multi-dimensional threat. However, the argument that this “ties down” these forces is based on ignorance of the mutual support that carriers and the other ships offer as part of an integrated force. The carrier supports the consorts as much as the consorts escort the carrier, if not more.⁷ Besides, a full-

fledged protective “screen” around a carrier is not always necessary. In accordance with the prevailing threat scenario, the force commander can exercise his discretion to detach forces for other missions intimated by the shore command.

Besides, the “overwhelming” naval forces being employed for the protection of the carrier could be reduced significantly if the platform possesses adequate weapon-systems. To keep the cost low and have space for larger number of aircraft, this is not being resorted to by India in case of the *Admiral Gorshkov*(*future INS Vikramaditya*). Nonetheless, it remains an option for India’s future carriers. Another option is to increase the carrier tonnage (size). This will enable the platform to carry more aircraft (in anti-ship and anti-submarine roles) for its own defence, without commensurately increasing its vulnerability in terms of radar signature or manoeuvrability.

It is pertinent to note the global technological developments in favour of the carrier. For example, the fixed-wing unmanned aerial vehicles (UAV) have already been operationalised in many countries. The induction of rotary-wing craft and underwater vehicles is on the anvil. In the coming years, such force-multipliers will further augment the defence of the carrier, which may reduce the necessity for a large number of escort vessels.

Acquisition and Operating Cost is Prohibitive

While a current-generation destroyer (5,000 tons displacement) costs about Rs. 3,000 crore, an aircraft carrier of about 35,000 tons displacement costs twice that amount. But this also indicates that the procurement cost of a carrier on a per-ton basis is substantially less than that of a destroyer. Furthermore, when seen in the context of a carrier’s ability to perform varied roles, including that of a floating airfield, which no other type of naval asset can perform, the high induction and operating cost is well justifiable.


During the aircraft carrier debate in Australia in the 1970s, one of the proponents stated that “Virtually all weapon acquisitions are expensive; but a carrier to meet the... requirements need cost no more than two destroyers. And no other equipment acquisition can match the essential capability of the aircraft carrier at equivalent cost.”⁸

Conclusion

Given the aforesaid considerations, *prima facie*, the imperative of including carriers in its naval doctrine far outweighs its cost, both financial and operational.

It is important to remember that many of the arguments against the carrier mentioned in this paper were used even before World War II. The statistics of the war pertaining to allied forces later disputed these – in comparison to 11 per cent carriers, the allies lost 18 per cent battleships, 33 per cent cruisers, 36 per cent frigates, 21 per cent sloops and 37 per cent submarines.⁹ The post-Cold War global trends of carrier acquisitions are instructive. Despite the fact that only Indian and British carriers went into action in the Cold War-era, France, Italy, Spain and Thailand did not hesitate to acquire carriers.

Like India, China is another major regional power. With the exception of its maritime-territorial claims in the western Pacific, China's emerging vital interests are likely to be similar to those of India. Although China has not yet operationalised a carrier, it is more due to geo-strategic compulsions specific to it, rather than for any reason applicable in Indian context. Furthermore, while such compulsions are likely to persist in the foreseeable future, Beijing has maintained a long-term vision to acquire carriers and has also been working towards it, such as in terms of formal induction in January 2007 of the old Soviet Varyag as Shilang (hull no 83) and the ongoing negotiations with Russia to procure the carrier-capable SU-33 naval aircraft.

In the US, the debate was not about the need of carriers, but their optimum numbers to support its global interests.¹⁰ Likewise, the debate in India must be on the number and size of its carriers, rather than on the platform per se. 

Notes

- 1 C. Uday Bhaskar, "Maritime Security and the Aircraft Carrier", Strategic Analysis, March 1998, p.1782
- 2 "Navy Chief 'concerned' over new Pak port", Indian Express, January 23, 2008, p.6
- 3 John Gordon IV et al, "Leveraging America's Aircraft Carrier Capabilities", National Defence Research Institute, RAND Corporation monograph series, 2006, p. xix
- 4 Dean Mathew, "Aircraft carriers: An Indian Introspection", Strategic Analysis, March 2000, p.2135
- 5 -ibid-
- 6 Dean Mathew, "Aircraft carriers: An Indian Introspection", Strategic Analysis, March 2000, p.2149
- 7 Pegasus, "The Aircraft Carrier Replacement: The Real Requirement", Journal of the Australian Naval Institute (ANI), November 1978, p.66.
- 8 -ibid-, p.60.
- 9 G. Nekrasov, Commander (Royal Australian Navy), "The Aircraft Carrier: Past and Future", Journal of the Australian Naval Institute (ANI), May 1976, p.28 and 30.
- 10 Dean Mathew, "Aircraft carriers: An Indian Introspection", Strategic Analysis, March 2000, p.2135