

Relevance of Aircraft Carriers for India: An Assessment

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Introduction

The epic sea battles between aircraft carriers never recurred after the Second World War. In the post-war period, most carriers began to retire without even having participated in battle. Many countries that possessed carriers or were aspiring to do so 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 mid-1960s led to India's employment of INS *Vikrant* with much hesitation.¹ Whether the enormous financial investment to acquire and operate a carrier can be justified against its need has been another contentious issue.

Lively debates on the rationale for aircraft carriers have often surfaced in the past, in India and among other naval powers; and each time, the naysayers have opted for a graceful withdrawal of their arguments. As a result, notwithstanding the protracted discussions over the years, the *aircraft-carrier* has still not followed the *battleship* into oblivion. The issue seems to be surfacing one again, in the Indian context, and ostensibly, as a result of effective Strategic Communication campaigns by foreign analysts.² Needless to suggest, it may be more prudent for Indian policymakers to consider the views of Indian analysts. In this context, this paper aims to examine need for aircraft carriers for India, and assess the related operational-level and tactical aspects of carrier operations in the Indian context.

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 the 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 the process will involve substantial geopolitical competition, wherein the possibility of military conflicts cannot be discounted. Furthermore, given the shifting global focus to the Indo-Pacific region³ (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 will necessarily necessitate a multi-carrier capability for its Navy.

Strategic Imperatives

The Indo-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 bases, these may not be available in the most critical occasion due to geopolitical factors, or premised on the imperatives of host country to maintain neutrality during an armed conflict involving India and a third country. Besides, by sheer virtue of the prefixed adjective, these 'fixed' bases will not provide the Indian Navy the flexibility of 'operational manoeuvre',⁴ which is so critical for a maritime operation. Furthermore, these 'fixed' bases will be highly vulnerable to the adversary.

Although there are numerous possible scenarios wherein a carrier capability would be indispensable, some of the more conceivable ones 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. In such conceivable conflict scenarios, carrier-based aviation will remain an indispensable tool for affecting the outcome of the war, even if it is

essentially continental in nature. The guns and missiles on board destroyers and frigates cannot possibly deliver sufficient volume of firepower in the enemy littoral.⁵

• ***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 the merchant shipping carrying strategic commodities to India. A decade ago in 2008, the Indian naval chief⁶ 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, which was analysed by the author earlier that year.⁷ These apprehensions seem to be coming alive today. Like Gwadar – and more lately, Djibouti⁸ – 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 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 Indian Ocean, besides catering for 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. As hitherto, a carrier can best bestow India a capability to maintain its influence in these waters and achieve a strategic 'dissuasion' and 'deterrence' 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 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 United States are instructive in

this regard. Even if its own interests are not directly endangered, India may need to meet its international obligation by participating in a peace-enforcement operation under the aegis of the United Nations.

- ***Security of Island Territories.*** Integral naval aviation is essential for defence of India's far-flung island territories, particularly of 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, including 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 an 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.⁹

As India emerges as a major maritime power, it will need the capability inherent in an aircraft carrier (along with in large sealift platforms and hospital ships) to meet its normative international obligations by projecting its 'benign' humanitarian role in the Indo-Pacific region, and the same needs to be reflected in its national and military doctrines.¹⁰

A carrier is essential to fulfil the other politico-diplomatic roles of the navy. The large platform is an awesome symbol of national power. Its overseas presence missions

and port-calls, when used with prudence and in a non-threatening poise can yield intangible, but substantial dividends to the country.

Air Power: Sea-based versus Land-based

The recent past is witness to a 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 lesser than that of its sea-borne counterpart.
- Carrier-borne aircraft are better able to maintain combat efficiency. In contrast, the lengthy transit of land-based aircraft would have degraded crew efficiency, by the time the aircraft reach the conflict zone/'task' area.¹¹
- Positioning the carrier in close geographical proximity of conflict zone enables the commander to better monitor the changing operational scenario and execute timely measures.¹²
- 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 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 advent of space-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 task force. The *raison d'être* of a carrier is to establish *sea-control* (including air-dominance)¹³ in a sizable area around it, with its precise size being contingent upon the mission, 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, the loss of a single asset to the enemy, including that of the 'battleship', has never been so damaging to national interest. The following accounts for the oft-stated arguments against the carrier.

#1. "Its 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 is 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 missile launch.

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 task force units, including those of the carrier-borne Ka-31 helicopters that provide a continuous Air Early Warning (AEW) 'cover. Theoretically, the task of Fleet Air Defence could be achieved by OTH surveillance coupled with LR missiles, but as of now, and for many years in future, use of organic air will be easier and cost-effective.¹⁴

Therefore, carrier-borne air and anti-missile defences (against the adversary's air, ship and submarine-launched missiles is critically essential, not only to protect the carrier and its escorts, but also other units operating in the area.

Furthermore a carrier's inherent battle-damage resistance is often under-estimated. History has shown that large ships are significantly less vulnerable than small ships and can withstand high degrees of damage without loss of the platform. 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 stay afloat return to harbour.

#2. "Its 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 task force devoid of a carrier can so do. According to one account of the 1971 Indo-Pak war, had INS *Vikrant* (with its *Alize* anti-submarine aircraft) been deployed in the western maritime theatre

rather than in the Bay of Bengal, the Pakistani submarines would not have been so successful in the Arabian Sea. (One of these sank INS *Khukri*).¹⁵

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 necessitate it to come to 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.

#3. “It 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. On the contrary, as explained earlier, the carrier supports the consorts as much as the consorts escort the carrier, if not more.¹⁶

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 independent missions in the form of Surface Action Groups (SAG) based on the appreciation of the shore command.

It is pertinent to mention here that 'Carrier-less' SAGs do exist (such as the US Navy's SAGs centred on *Aegis*-class destroyers armed with *Tomahawk* long-range anti-ship missiles) with their own means of obtaining targeting information. However, their 'non-reusable' weapons are too expensive to be fired without confirmation of target, particularly when the adversary is observing a higher degree of electronic silence in congested International Shipping Lanes (ISL), where neutrals are also present. Besides, there may be serious international repercussions of making a mistake.

In contrast, a carrier's strike aircraft can always return without using its weapons if the target is not found or is considered 'unworthy'.¹⁷

Besides, the 'overwhelming' naval forces being employed for the protection of the carrier could be reduced significantly if the platform possesses adequate weapon-systems. This route was not adopted by India in case of INS *Vikramaditya* (former *Admiral Gorshkov*) in order to keep the cost low and have space for more number of aircraft. 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. Both will remain alternative options for India's future carriers.

It is pertinent to note the global technological achievements in favour of the carrier. For example, the fixed-wing unmanned aerial vehicles (UAV) have already been operationalised in many countries. The induction of unmanned 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.

#4. "Its 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 figure. This amounts to the procurement cost of a carrier on 'per-ton' basis being substantially lesser 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 may be well justified.

During the aircraft carrier debate in Australia in the 1970s, one of the proponents stated that "Virtually all weapon acquisitions are expensive; but for a carrier to meet the requirements, its price-tag is no more than the cost of two destroyers... no other equipment acquisition can match the essential capability of the aircraft carrier at equivalent cost."¹⁸

Conclusion

As the eminent naval strategist, Bernard Brodie, noted in his book '*Guide to Naval Strategy*' in 1965,

*"There has always been a lay prejudice against bigness in naval vessels. That is why in the past, battleships were subject to such violent verbal attacks while the much more vulnerable cruisers escaped any kind of criticism. This attitude was indeed a prejudice, because it characteristically ignored the fact that bigness makes for better protection..."*¹⁹

It is important to remember that many of the arguments against the carrier mentioned in this paper were used even before the World War Two. 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.²⁰ 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. In the US, the debate was not about the need of carriers, but their optimum numbers to support its global interests.²¹

Towards deciding the need for carrier aviation for India, an objective cost-benefit analysis will have to be carried out. However, given the aforesaid considerations, *prima facie*, the imperative of including carriers in its naval doctrine far outweighs its cost, both financial and operational.

Alike India, China is an emerging naval power in the Indo-Pacific region. China operationalised a training carrier *Shilang* (formerly the Soviet *Varyag*) in 2012, and its second indigenous one will be commissioned soon. More than a decade ago, the author was naïve to state that "Aircraft carriers are not the current priority (in China's maritime strategy) since these would cause apprehensions among Southeast Asian states and besides, would be very vulnerable in the South China Sea due to the many 'unfriendly' air bases dotting its periphery."²² The penchant of Chinese analysts for the theories of the American Admiral AT Mahan was ignored as merely an allure of China's symbolical completion with the United States. However, recent developments amply indicate that the assessment was incorrect, and carrier-based 'Sea Control' remains the

core element of China's maritime-military strategy. The earlier assessment failed because China's geo-strategic scope was incorrectly appreciated by the author. The scope is not confined to the South China Sea, but extends to the Indian Ocean, and possibly beyond, in the coming years. It is of little surprise, therefore, that the Chinese will be operating four carriers in 2025, and as many as ten by 2050. Likewise, India must deliberate on the number and size of its carriers, rather than on the platform *per se*.

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