

# Meeting Maritime Challenges Indian Navy Looks Skywards

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For more than five years now, the Indian navy has been looking skyward in its quest of making use of the assets under its command to the maximum extent possible and projects its combat power in the littoral regions to take care of India's security and economic interests. In 2005, the then Indian Defence Minister Pranab Mukherjee had informed the Indian Parliament that the Indian navy plans to create and sustain a three dimensional, technology enabled network centric system to transform itself into a formidable sea power.

Key to harnessing the full potentials of such an advanced technology driven system lies in the Indian navy's capability to access "satellite resources" on an uninterrupted basis. Indian navy's radical shift in its strategic outlook is clearly exemplified by the fact that it is aiming for a global reach from being a regional sea power worried about the threats from China and Pakistan. As pointed out by former Indian navy Chief Admiral Arun Prakash, "Indian navy is serious about transforming itself into a true blue water navy". What are the challenges for the Indian Navy to achieve this? How is the navy preparing itself to meet them?

## I MARITIME CHALLENGES AND OPPORTUNITIES: SIGNIFICANCE OF SATELLITES & INFORMATION TECHNOLOGY

TO boost its strike capability, Indian navy is quite keen to link up its long range missiles, radars and air defence systems on all the sea bed assets to a central room through a highly dedicated satellite network. The US navy has been in a position to dominate a large part of oceanic waters through its "sustained and creative" reliance on a variety of advanced space based platforms including satellites meant for communications and navigation as well as reconnaissance and surveillance. But then in the immediate future, the Indian navy is not looking at the kind of a

sophisticated spacecraft system that the US navy has been able to deploy to penetrate through the oceanic thermal layers to monitor the movement of undersea objects. Today, the Indian navy is looking at acquiring a dedicated, conventional satellite system to ensure a smoother, faster and a secure communications link for a better coordination of its assets. However, as a forward looking maritime force, Indian navy is fully well aware that ocean watch satellites snooping on the naval movements, electronic ferret satellites gathering data on radio frequencies, meteorological satellites predicting weather to facilitate an effective use of the weapons systems, navigation satellites guiding lethal weapons to designated locations with unflinching accuracy, reconnaissance satellites providing vital data on the strength of the potential adversaries and communications satellites ensuring a real time link up for the effective use of the resources are all puppets in the chain of the modern day warfare.

To heighten its operational awareness in all its manifestations, the Indian navy is increasingly relying on information technology (IT). Evidently, IT would help it move from a platform centric force to a network centric force by means of an effective link up of its shore based installations with ships and vessels in high seas through a dedicated satellite communications network. Further, Indian navy is finding it increasingly important to rely on satellite resources to derive the best out of its electronic warfare systems.

The glaring failure of the Indian navy to detect the movement of terrorists across the Arabian sea preceding 26/11 Mumbai attack has given an impetus to the navy's growing thrust on satellite systems and IT tools. In fact, a few days before 26/11, while on a tour of Kerala, Indian Defence Minister AK Antony had expressed his concern over the poorly guarded coastal belt of India failing a victim to an "extraneous threat". His observation was that India's 7516-km long coastal belt

straddling across the nine states and four union territories need to be protected much the same way as the landlocked borders are taken care. Earlier, former Indian navy chief Suresh Mehta had hinted at the possibility of cargo containers being employed to transport nuclear devices to pre-determined targets by the well organized, tech savvy terrorist groups.

Given the practical difficulties involved in guarding the long and easy to reach coastal stretch of India, Indian navy is looking at a string of satellites specially designed to take care of the maritime security aspects. Moreover, as pointed out by the Indian navy Chief Admiral Nirmal Kumar Verma, Indian navy's responsibilities have gone up manifold since the Mumbai terrorist attack. Post 26/11, all the stake holders in the area of maritime domain have been directed to coordinate their activities with the Indian navy which has been designated the sole centralized authority for India's costal security. This step is expected to result in a coordinated effort to keep a hawk eye on the vessels and other objects intruding into the Indian territorial waters. According to C.Uday Bhaskar, Director, National Maritime Foundation, lack of coordination among the multitudes of agencies involved in ensuring India's maritime security is a major causative factor for mainland India being exposed to the threat from across the high seas.

To heighten vigil along the Indian coastal stretch, the Indian navy is planning to set up a national command, control, communications and intelligence(C3I) network for maritime domain. Indian navy is also working out a Standard Operating Procedure (SOP) with other stake holders in the maritime domain to avert the possibility of another 26/11. Antony is clear in his perception that India's growing stature as highlighted by its economic surge could also lead to increased expectations that it would maintain a sea power to ensure security in the strategic Indian ocean region. India's geographical

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location in a region afflicted by natural disasters has imposed additional responsibilities on the Indian navy to render humanitarian services and disaster relief in the Indian ocean region.

Indian navy is sprucing up its machinery to tackle arms trafficking, smuggling and possible movement of terrorist groups through the Arabian sea route even as it is required to take on the threat of pirate fishing trawlers and ensuring the safety of oil and gas wells in the waters of Bay of Bengal. Moreover, India's proximity to two strategic commercial straits — Hormuz and Malacca, has thrust a greater burden of responsibility on the Indian navy. While more than one third of the international seaborne oil shipments pass through Hormuz, Malacca strait is major sea channel through which a large number of crude oil tankers ply every day.

Indian navy's maritime strategy and doctrine are based on India's interests ranging from the Gulf of Aden to the Strait of Malacca and sea lanes of communications in the Indian Ocean region. Not surprisingly then the Indian Prime Minister Man Mohan Singh while speaking on the occasion of launching of India's first home grown nuclear submarine INS Arihant in July last had observed, "The sea is becoming increasingly relevant in the context of India's security and we must readjust our military preparedness to this changing environment .Our navy has a large responsibility in this regard".

## II GLOBAL SEA POWER VISIONS FOR FUTURE

Against such a canvas, it is but appropriate that Indian navy is keen to operate an exclusive satellite system as part of its long term vision of emerging as a global sea power guided by a constellation of spacecraft to meet the challenges lying ahead. Of course, for well over five years now, media reports have been suggesting Indian navy's plan for a dedicated satellite system. And everything going as planned, the Indian navy, the youngest of the Indian defence services, will get its first exclusive satellite system for a "secure and reliable" communications sometime during this year. The multi band communications satellite dubbed Gsat-7, will be designed, developed and launched by the Indian Space Research Organisation (ISRO).

However, the details of the deal between ISRO and the Indian navy have not been made public. But one thing that is quite clear is that this satellite featuring state of the art technologies will ensure a robust communications link and provide a digital

tactical battle space view of the dispersed fleet formations, aircraft locations and even submarines moving in the depths of the oceanic waters. This satellite, which would encase the rich and varied experience of ISRO in building INSAT series of multipurpose spacecraft, will be launched by means of the three stage Geosynchronous Satellite Launch Vehicle (GSLV) from the Indian spaceport on Sriharikota Island in the Bay of Bengal. The satellite will be placed into a geostationary orbit — where a spacecraft appears stationary in relation to earth — over the Indian Ocean region. The Defence Research and Development Organisation (DRDO) will be involved in helping navy put in place an infrastructure for the “efficient and integrated” use of this exclusive satellite and prepare the ground for the Indian navy to create a versatile and robust net centric warfare platform linked to “satellite capabilities”.

Believed to be similar in capability to the American FLTSAT communications satellite, Gsat-7 will go a long way towards improving Indian navy's communications network to effectively link up its resources spread across the vast and sprawling oceanic regions. As pointed out by Antony, “the launch of this satellite will significantly improve connectivity at sea”. Antony also remarked that the Indian navy, while making use of the potentials of this satellite, should also focus on synergizing the widely dispersed intellectual capital available in the country. According to sources in the Indian navy, the new satellite, which will primarily provide communications among naval stations and platforms at sea, is expected to transform the entire maritime domain awareness of the Indian navy. Meanwhile India's sole aircraft carrier INS Viraat, whose service life has been extended through a “retrofitting and augmentation” program, is well in preparation for this satellite.

As envisaged now, this satellite will have a 600 to 1000 nautical miles footprint over the Indian oceanic region which India considers it to be its primary area of responsibility in terms of maritime security. Further into the future, as the situation unfolds, the Indian navy would look at having dedicated satellite systems for weather watch, navigation, surveillance and reconnaissance. If this is not found feasible, Indian navy would share the resources of the advanced and specialized satellites with other two wings of the service. For building, launching and operating a satellite system is a prohibitively costly affair. Right now, like the other two wings of the Indian defence services, Indian navy is also making use of the potentials of some of the INSAT and IRS series of satellite being operated by ISRO. While INSAT series space birds provide communications

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services, IRS satellites are mainly meant for earth observation purposes. In addition, Indian navy is also making use of the leased capabilities onboard the foreign satellites. But then as pointed out by a naval official, this kind of “limited and restricted” access to satellite capabilities makes for a far from happy scenario. And only exclusive satellites at the command of the navy would help meet its goals in the future.

However, the biggest hurdle facing the Indian navy would be the limited capability of ISRO to build and launch satellites. With the Indian industrial base lacking in resources and expertise to build satellites and launch vehicles on a turnkey basis, the Indian navy might find it difficult to get the kind of space platforms it is looking for well on time. Of course, the Indian industries contribute to the Indian space program by way of the supply of specific components, systems and hardware for satellites and launch vehicles. In sharp contrast, in USA and West Europe, private industrial outfits have built up a technological and production base resurgent enough to supply both the satellites and launch vehicles in “ready to use condition”.

Against this backdrop, whether in the years ahead, the Indian navy will get a nod from the government for ordering the satellite systems it needs from foreign aerospace companies on a turnkey basis, will depend on the perception of the government of the day. Without doubt, in years ahead, to sustain its expansion programme, Indian navy would be interested in acquiring advanced microwave imaging satellite systems, naval transit space platforms, electronics ferret satellites and other specialized space birds. But more importantly, the Indian navy would need to create a “human talent pool” to make use of the satellite systems it would be acquiring in the years ahead. In this task, it could seek the assistance of ISRO and DRDO. On another front, Indian navy should also prepare for its seamless integration into the proposed tri service space command.

All said and done, ISRO continues to maintain a studied silence on the plan to build and launch



Gsat-7 for the Indian navy. For being a purely a civilian agency with the mandate to make use of the fruits of space technology for the national development, ISRO cannot afford to associate itself with the Indian defence establishment in full public glare. Indian navy has evinced interest in making use of the data made available by India's dedicated ocean watch satellite Oceansat-II launched last September. For the data from this satellite provides a clear picture of oceanic environment including the weather dynamics besides being of help in monitoring some of the objects moving in the Indian territorial waters. Similarly, the Indian navy would be interested in making use of a constellation of navigation satellites that ISRO would be launching as part of IRNSS (Indian Regional Navigation Satellite System) composed of a constellation of seven satellites. Expected to go on stream by around 2015, IRNSS is expected to provide position accuracies comparable to the declared position accuracies by other global constellations in a region centered over India and extending to the adjoining areas.

#### IV THE ROAD AHEAD

Even while looking space-wards to help it forge ahead on the rough oceanic waters, Indian navy is also preparing the ground to turn itself into a "power packed force for a strong nation" with the acquisition of missile equipped warships, submarines, aircraft, helicopters and aircraft carrier. As stated by Indian navy chief Admiral Nirmal Kumar Verma the goal for the next decade was to have a fleet of 160 ships and over 300 aircraft. In a bid to boost its blue water credentials, Indian navy is expecting to operate three aircraft carriers, well before the end of 2020. For an aircraft carrier is widely recognized as a symbol of power projection and maritime supremacy.

While on the one hand it is acquiring the augmented and retrofitted 45,000-tonne displacement Kiev class aircraft carrier Admiral Gorshkov—renamed INS Vikramaditya, on the other India's homegrown 37,500-metric tone displacement aircraft carrier is under construction at the Cochin shipyard at Kochi in South India. Both these aircraft carriers are expected to join the Indian navy before 2015. Indian navy is also seriously mulling a plan to go in for a second indigenous aircraft carrier with 50,000-tonne displacement and equipped with CRATOBAR (Catapult Assisted TakeOff But Arrested Recovery) capability. Only three countries in the world have CARTOBAR enabled carriers. Naval variant of the home grown Light Combat Aircraft(LCA)Tejas, now under development, is planned to be

deployed on the indigenous aircraft carriers.

But the most signal achievement of the Indian navy was the launching of the homegrown 6,000-tonne nuclear powered submarine INS Arihant in July 2009. INS Arihant will be equipped with nuclear tipped missiles including the powerful 700-km range Sagarika. As strategic analysts point out INS Arihant has given a new edge to the Indian quest for a nuclear weapon triad—the proven capability to fire nuclear weapons from air, land and sea. India already has solid fuel driven Agni family of road and rail mobile ballistic missiles as well as combat aircraft like Mirage-2000 and Su-30MKI which are capable of launching nuclear missiles. Meanwhile, the Indian navy is hoping to get Russian origin Akula class Nerpa nuclear powered submarine sometime during the current year. Nerpa is to be leased by the Indian navy for a period of ten years Nerpa will be used by the Indian navy to gain an insight into the complex art of maintaining and operating nuclear powered submarines. Six Scorpene submarines on order from the Indian navy are under construction.

However, the trump card of the Indian navy would be the Indo-Russian supersonic, cruise missile BrahMos which has already been inducted into its warships. The long firing range of BrahMos provides a high combat effectiveness in a naval warfare and the enemy ships could be destroyed even before they reach the distance that allows them to use the weapons. So far, the Indian navy was dependent on P-15 and P-20 anti ship missiles which left much to be desired. Similarly, the 350-km range Dhanush, a variant of Prithvi missile in service with the Indian army will help the Indian navy take care of both the shore and sea based targets.

The massive expansion of the Indian navy with a thrust on technological upgradation is in keeping with its strategy of dominating the oceanic waters to meet the emerging security challenges. With an eye on force multiplication, the Indian navy is working on transforming itself into a three dimensional force with a satellite augmented network centric warfare capability. Indeed, Indian navy's maritime doctrine looks beyond the challenges posed by the Chinese navy.

*Views expressed are author's own.*



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