

India's Maritime Heritage and its Milestones

Dr. Devakumar Jacob

Assistant Professor of History, L.N.G. College

I. INTRODUCTION

**“Sea power - includes the main components, ocean research and exploitation, the status of the merchant and fishing fleets and their ability to meet the needs of the state, and also the presence of a navy is to safeguard the interests of a state since antagonistic social systems exist in the world.”—
Admiral Sergei Gorshkov .**

Concepts have been interpreted differently by historians in different times to give a comprehensive view of the past. We are familiar with political history, social history, economic history and administrative history. Maritime history or Sea Power history is yet another concept, which has been gaining momentum and currency these days. Maritime history has become a tool in the hands of several Indian historians who are interested in Indo- Portuguese history. The study of maritime history enables to come closer to the crucial dynamics of historical process. Maritime history embraces many aspects of history, such as international politics, navigation, oceanic currents, maritime transportation, coastal society, development of ports and port-towns, sea-borne trade and commerce, port-hinterland relations and so on. As far as India and the Indian Ocean regions are concerned, maritime studies have a great relevance in the exchange of culture, establishment of political power, the dynamics of society, trade and commerce and religion of these areas.

Sea power emerges as one of the important factors for strengthening the economy, accelerating technical development and consolidating economic, political and cultural links with friendly people and countries.”Sea power is the totality of a nation’s relationship with the sea. It includes the full range of activities from shipbuilding, fleet ownership, fisheries, exploration and a robust defense capability. Building a navy is the task of generations, requires a vision of a hundred years and a practical working time horizon of fifty. Who knows what the world will be like, fifty years from now? Who friend and who foe? India should, therefore, plan its maritime defense on the basis of the extent of its anticipated usage of the seas, which will grow exponentially.

In the midst of the third largest ocean in the world, India’s location is in many ways her destiny. The seas, especially the Indian Ocean, are vital to India’s interests. Transport by water remains the cheapest form available. And even when we speak of cyberspace, 95% of internet traffic is at some stage carried under the sea by underwater cables. Maritime trade and energy supplies are critical to India’s transformation. Consider some statistics. Today 90% of global commerce and 65% of all oil travels by sea. Of this half the world’s container traffic and 70% of the total traffic of petroleum products is accounted for by the Indian

Ocean. Energy: India depends on oil for over 33% of her energy needs, and imports almost 70% of that. We import coal from ten countries, (including Mozambique, South Africa, Indonesia and Australia), many of which are Indian Ocean littorals.

The Indian Ocean sees about 100,000 ships transiting across its expanse annually. Two-thirds of the world’s oil shipments, one-third of its bulk cargo, and half the world’s container traffic pass through its waters. The vibrant economies of China, Japan, and South Korea as well as the rest of Asia-Pacific rely on oil supplies, which emerge from the Strait of Hormuz and transit via the Malacca Strait into that region. Over 70% of our own oil comes by ship from the Persian Gulf. Any disruption in oil traffic could destabilize the price levels, resulting in a major upset for the world economy and a setback for our developmental process. As mentioned earlier, India’s fortunate geographical location astride Indian Ocean sea-lane gives her a key role in safeguarding their integrity and ensuring unhindered traffic. India’s burgeoning economy, which ranks fourth in the world in PPP, is inextricably linked with sea borne trade. Our exports were about US\$ 100 billion in 2005-06 and are slated to double over the next five years. Of our foreign trade, over 75% by value is carried by sea. India’s growing merchant fleet is the 15th largest globally and operates out of 12 major and 184 minor ports scattered along our 7500 km long coastline.

The Indian Ocean served not only as a conduit for conducting trade and commerce, but also served and still serves, as an important means of communication. The Indians have carried commodities to several Asian and African countries even before the arrival of the Europeans from India. Exchange of goods promoted maritime trade as well as the fusion of different cultures in the Indian Ocean. Art, architecture, culinary habits, music, clothing, language and religion went through a transitional period because of the maritime activities in the Indian Ocean. Another aspect of the ocean, which presents the prospect of wealth and prosperity, and yet contains the seeds of conflict, is undersea resources. The average depth of the Indian Ocean is less than 4 km, and that is the distance, which tantalizingly separates us from a veritable treasure-house of rare minerals, gas and hydrocarbons awaiting exploitation on the ocean bed. India has a mineral rich EEZ extending currently, over 2.2 million sq km (and likely to increase). In many instances, especially in deep basins of the Andaman Sea, technology is the only barrier that currently hinders exploitation of these resources at this moment.

II. GENESIS OF INDIAN NAVY

The history of the Indian Navy can be traced back to 1612 when Captain Best encountered and defeated the Portuguese. This encounter, as also the trouble caused by the pirates, forced

the British East India Company to maintain a small fleet at Swally, near Surat (Gujarat). The First Squadron of fighting ships arrived on 5 September 1612, forming what was then called the Honourable East India Company's Marine. It was responsible for the protection of the East India Company's trade in the Gulf of Cambay and the river mouths of the Tapti and Narmada. The officers and the men of this force went on to play an important role in surveying the Arabian, Persian and Indian coastlines. Although Bombay had been ceded to the British in 1662, they physically took possession of the island on 8 February 1665, only to pass it on to the East India Company on 27 September 1668./ As a consequence, the Honorable East India Company's Marine also became responsible for the protection of trade off Bombay.

By 1686, with British commerce having shifted predominantly to Bombay, the name of this force was changed to Bombay Marine. This force rendered unique service, fighting not only the Portuguese, Dutch and French, but also interlopers and pirates of various nationalities. The Bombay Marine was involved in combat against the Marathas and the Sidis and participated in the Burma War in 1824. In 1830, the Bombay Marine was renamed Her Majesty's Indian Navy. With the capture of Aden by the British and the institution of the Indus Flotilla, the Navy's commitments grew manifold and its deployment in the China War in 1840 bear's adequate testimony to its proficiency.

Whilst the Navy's strength continued to grow, it underwent numerous changes of nomenclature over the next few decades. It was renamed the Bombay Marine from 1863 to 1877, after which it became Her Majesty's Indian Marine. At this time, the Marine had two divisions, the Eastern Division based at Calcutta under the Superintendent, Bay of Bengal, and the Western Division at Bombay under the Superintendent, Arabian Sea. In recognition of the services rendered during various campaigns, its title was changed to Royal Indian Marine in 1892, by which time it consisted of over 50 vessels. The Royal Indian Marine went into action with a fleet of minesweepers, patrol vessels and troop carriers during the First World War when mines were detected off Bombay and Aden, and was utilised mainly for patrolling, ferrying troops and carrying war stores to Iraq, Egypt and East Africa.

The first Indian to be granted a commission was Sub Lieutenant D.N Mukherji who joined the Royal Indian Marine as an engineer officer in 1928. In 1934, the Royal Indian Marine was re-organised into the Royal Indian Navy, and was presented the King's Colour in 1935 in recognition of its services. At the outbreak of the Second World War, the Royal Indian Navy consisted of eight warships. By the end of the war, its strength had risen to 117 combat vessels and 30,000 personnel who had seen action in various theatres of operations. On India attaining Independence, the Royal Indian Navy consisted of 32 ageing vessels suitable only for coastal patrol, along with 11,000 officers and men. The senior officers were drawn from the Royal Navy, with R Adm ITS Hall, CIE, being the first Post-independence Commander-in-Chief. The prefix 'Royal' was dropped on 26 January 1950 with India being constituted as a Republic. The first Commander-in-Chief of the Indian Navy was Adm Sir Edward Parry, KCB, who handed over to Adm Sir Mark Pizey, KBE, CB, DSO in 1951. Adm Pizey also became the first

Chief of the Naval Staff in 1955, and was succeeded by V Adm SH Carlill, CB, DSO.

The Indian Navy is the naval branch of the Indian armed forces. The primary objective of the Navy is to secure the maritime borders. India also uses its Navy to enhance its foreign relations. In recent years, the Indian Navy has undergone considerable modernization to replace aging equipment currently in service. One such modernization is, replacing the aging INS Viraat aircraft-carrier with INS Vikramaditya.

INS Vikramaditya is a modified Kiev class aircraft carrier built by the former Soviet Union during the cold war period. INS Vikramaditya is the new name for Admiral Gorshkov. The Admiral Gorshkov entered service in 1987, but was deactivated in 1996 because it was too expensive to operate on a post-cold war budget. This attracted the attention of India, which was looking for a way to expand its carrier aviation facilities. After a series of negotiations, India and Russia signed a deal in 2004 for the sale of this ship. The announced delivery date for INS Vikramaditya was August 2008, but with issues compounded by the ongoing cost overruns for upgrading the ship, its induction in to the Navy is scheduled on December 4, 2012. INS Vikramaditya is equipped with MiG-29K Fulcrum fighters and Kamov anti-submarine helicopters.

The Dock trials of INS Vikramaditya were began in March 2011, to test the main power generation units and radio-electric armament. Indian navy personal also began their training in December 2011. On April 19, 2012, it was announced that all internal systems are functioning and the ship was entirely self-contained. The sea trails for INS Vikramaditya were begun on 8th June, 2012, which are scheduled for 120 days. Indian Navy's long term objective is to be able to respond to emergent situations far away from main land. The 'String of Pearls' theory of China and increasing Chinese activity in the Indian Ocean may put India at a military disadvantage. So India needs to develop a grand strategy to counter the Chinese aggression in the Indian Ocean. INS Vikramaditya will have to play a crucial role in achieving this objective.

INS Vikramaditya, like any other aircraft carrier, will increase the reconnaissance radius drastically. In war situations, using aircraft carriers navy can send aircrafts to destroy enemy ships before they come within the range of the ships. Aircraft carrier is essentially a moving air base with aircrafts, which can provide air cover to the fleet. With a stronger navy India can increase its influence on maritime countries. INS Vikramaditya with Kamov anti-submarine helicopters provides the Indian navy also a tactical advantage against sub-marines, which cannot fire back on helicopters. To understand, induction of INS Vikramaditya will significantly increase the overall effectiveness of the Indian Navy. This will be a milestone in the road map of the Indian Navy, to become a Blue-water navy.

III. GLOBAL AMBITIONS

The active strength of the Indian Navy is 58,350 persons. Besides, it has 55,000 reservists. Indian naval vessels include sixteen SSK series submarines, eight DDG Destroyers and twelve Frigates. Besides, it has twenty-four Corvettes; twenty-eight Patrol and Coastal Combatants'. It has forty-seven vessels to provide logistic support. Indian Navy has ten Mine

countermeasures (MSO 10 Pondicherry-(FSU Natya) and seventeen amphibious flotillas. With over 7,000 Naval Aviation personnel, it has adequate combat naval aviation power to support its marine operations. The Russian origin ten Kilo-class Type 877EM or the Sindhughosh-class- units are considered as the backbone of the Indian naval fleet. The first indigenously built nuclear submarine "Advanced [Technology](#) Vessel" (ATV) named as Indian Naval Ship (INS) Arihant was put under sea trial in July 2009, which met success. India is planning to add 5-6 nuclear capable ATV submarines in its naval fleet for undertaking strategic nuclear role. Today Indian Navy is the sixth largest Navy of the world, having nuclear capable submarines.

Apart from its indigenously developed Naval vessels, India has the experience of leasing the Soviet Submarine Project 670 Skat (NATO name Charlie-I) from 1988 to 1991. Since that leasing experience was a success, therefore India has decided to lease another Russian origin nuclear-submarine, the Project 971 Shchuka-B (NATO name AKula-II). Approximately 300 Indian marines have undergone [training](#) of the submarine at a special facility in Sosnovy Bor, near St. Petersburg, Russia. The submarine is being handed over to the Indian Navy by mid of 2010. The Akula series submarines, known as the Project 971 Shchuka (meaning pike or peak) is a "nuclear-powered attack submarine." The first of its kind was built and deployed by former Soviet Union in 1986. This series has further three sub-classes: original 'Akula-I'; seven submarines of this sub-category were built by former Soviet Union from 1982 to 1986. Five submarines of the second sub-class, known as the 'Improved Akula' were built from 1986 to 1991. The two submarines of third sub-class, the 'Akula-II' were built by Russian Federation from 1993 onwards. This is much-improved version of the submarine.

With the capability to strike against hostile ships and coastal installations, Russia had deployed most of its Akula class submarines in the Pacific region, as an "aggressive breed of fresh waterpike." The average length of the Akula submarines is 110 meters. It is double-hulled with sufficient distance between its outer and inner hull, primarily for the protection of the later. As compared to the single hull craft, the double hull submarines increases its reserves buoyancy approximately three times. These submarines can launch both anti-submarine and anti-surface torpedoes. While the Snoop Pair or the Snoop Half acts as the surface search radar for the target acquisition, the MGK 540 sonar system provides automatic target detection. With the seven bladed fixed pitch propellers, the propulsion system provides "a maximum submerged speed of 33 knots and a surface speed of 10 knots." Besides, there is a 370 KW reserve propeller system, powered by two motors, which provides it a speed of 3 to 4 knots. Akula submarine can dive up to a depth of 600 meters. It can carry the supplies for itself as well as the people on board that can sustain them for over 100 days. Its operational crews comprises of seventy three members."

Technically, the double hull Akula submarine "composed of an inner pressure hull and an outer light hull. This allows more freedom in the design of the exterior hull shape, resulting in a very hydrodynamic submarine compared to western counterparts at the time. The distinctive "bulb" or "can" seen on top of the Akula's rudder houses its showed solar array, when retracted." Submarines of this series have been armed with "four 533 mm

torpedo tubes which can use Type 53 torpedoes and SS-N-15 Starfish missile, and four 650 mm torpedo tubes which can use Type-65 torpedoes or the SS-N-16 Stallion missile. These torpedo tubes are arranged in two rows of four tubes each." Besides, the Akula-II and Improved Akula submarines are fitted with an "additional six 533 mm torpedo tubes mounted externally. The external tubes are mounted outside the pressure hull in one row, above the 'Normal' Torpedo tubes, and can only be reloaded in port or with the assistance of a submarine tender. The 650 mm tubes can be fitted with liners to use the 533 mm weaponry. The submarine is also able to use its torpedo tubes to deploy mines."

As compared to Akula-I, the Akula II submarine is approximately 230 tons larger in displacement and 2.5m greater in LOA. The space so increased is being used to reduce the active noise. "The MGK-501 Skat sonar system on Akula-I is replaced to a new MGK-540 Skat-3 sonar system." By doing so, it attained the equivalence of the same class of American AN/BQQ-5/6. It is worth mentioning that the K-157 Vepr has attained the status of the first Soviet submarine that was quieter than the latest US attack submarines of that time, which was the Improved Los Angeles class (SSN 751 and later). Indeed, the advancements made by Soviet for quieting the sound of submarines to a considerable level have caused uneasiness in NATO and US. This achievement of the quieter and more accurate propellers was attained through the Japanese firm [Toshiba](#), which sold to Soviet Union the sophisticated nine-axis milling equipment along with the [computers](#) control system in 1983-84. Soviet Union later acquired the services of Norwegian firm Kongsberg Vaapenfabrik for its further refinement.

Apart from the centralized weapon system, this version of the submarine has better command and control with high degree of automation, which reduce the strength of the crews. The project has the similarity with the Project 705 Alfa SSN. Akula-II is being commissioned as Indian Naval Ship (INS) Chakra in mid 2010. It is "slightly smaller and streamlined towed array dispenser than the other submarines of the class." As compared to other submarines, this would have longer sail. Moreover, it is equipped with 28 nuclear capable cruise missiles, which can engage target up to 3000 kilometers. Therefore, it would cause a major naval imbalance in the region.

After necessary repair, Akula-II submarine was put through the sea trial again and has successfully completed that in the presence of the Indian submariners, who were on board. Upon commissioning, the submarine may not be carrying the nuclear weapons out rightly, but certainly has the capability to do that, therefore, would carry those as and when required. It would however carry anti ship and land attack Klub missiles besides torpedoes. Apart from using this submarine as the [training](#) platform for India's indigenous nuclear submarine fleet, it would help in the refinement of the nuclear operational concepts. "Akula-II nuclear attack submarine is recognized as a state-of-the-art and top of the line weapon system amongst contemporary submarines. Its induction into the Indian Navy will significantly enhance India's reach and offensive capability and may be used as the platform for the second strike in the event of a nuclear attack. Besides its own indigenously built nuclear submarine; INS Arihant, induction of this Russian version

Akula-II submarine would significantly tilt the balance of power in India's favour. Akula-II; the hunter-killer submarine is one of the quietest submarine in the world today. It can reach very near to the target area without detection. With this massive naval built up, Indian military power is becoming a nuisance not only for the South Asian countries, but for the China and Gulf countries as well. Indeed, in the field of naval development, India has global ambitions. It intends operating at the international waters like the navies of United States, Russia, and United Kingdom. In order to be realized, it would operate on the principle of submarine-based minimum nuclear deterrent (MND). The Indian ATV programme, leasing of nuclear submarines, and acquisition of air-independent propulsion (AIP) submarines are part of this strategic naval development.

Owing to their traditional rivalry, Pakistan feels seriously threatened by the addition of the nuclear capable submarines in the Indian naval fleet. International community must be fretful of the fact that why India is being allowed to expand its naval capabilities out of proportion. This unrealistic Indian act would provoke Pakistan and other regional countries to acquire the similar capability, thus giving way to an unending naval race in South Asia. Now it is up to the global players like US and Russia, that either they should promote the global peace by denying India the acquisition of deadly war munitions like Akula-II or to sell their weaponry for making the world insecure.

With an overall hike in the defense budget of 17 per cent, Indian navy has been allocated \$4.77 billion which is roughly \$2 billion more than the allocation for 2011–2012. The increase in expenditure will be utilised to procure several frigates and destroyers, speed up key projects and increase its strategic reach in the Indian Ocean region. By the end of the 14th Plan (2027), the Indian Navy expects to have "over 150 ships and close to 500 aircraft and helicopters". In addition to the existing mission of securing both sea flanks in the Bay of Bengal and the Arabian sea, the navy would be able to "respond to emergent situations far away from the main land". Marine assault capabilities will be beefed by setting up a new amphibious warfare facility at Kakinada, Andhra Pradesh. The Indian Navy has initiated Phase II expansion of [INS Kadamba](#), the third largest naval base, near [Karwar](#). Phase II will involve expansion of the berthing facilities to accommodate 40 more front-line warships, including the aircraft carrier INS Vikramaditya, tugs and barges, raise manpower to 300 officers and around 2,500 sailors, and build a naval air station with a 6,000-foot runway. This is to be followed by Phase IIA and IIB, at the end of which INS Kadamba will be able to base 50 front-line warships.

IV. IS CHINA AN EMERGING SEA POWER AGAINST INDIA?

In the context of the South China Sea rapidly emerging as a turbulent oceanic stretch with China questioning the claims of a number of Asian countries over this disputed water body, late last year Indian Navy Chief Admiral DK Joshi had driven home the point that the Indian Navy is prepared to deploy vessels to the South China sea to protect Indian interests there. As it is, not long back India had sparred diplomatically with China over its gas and oil exploration blocks off the coast of Vietnam. China claims virtually the entire mineral rich South China Sea and has stepped up its naval presence here to ward off any challenge to

its monopoly of this oceanic body. Joshi did also express the view that Beijing's growing maritime strength was a "major cause of concern." The moral of the story is that the Indian Navy cannot afford to keep its focus concentrated exclusively on the Indian Ocean region. It should build up the capability and power level good enough to take care of Indian interests in any part of the global oceanic stretch.

As diplomatic experts point out, China is beefing up its naval capability with a view to not only exercise virtual monopoly over the South China Sea but also challenge US dominance over the global oceanic waters. The combat edge of the Chinese navy is expected to receive a shot in the arm from the home grown, 58,000-tonne class Liaoning aircraft carrier built around the decommissioned Soviet era ship Varyag. China has been able to successfully land the indigenous fighter J-15 on the deck of Liaoning, which is currently going through extensive sea trials.

Of course, Joshi did hit the nail on the head with the statement that while India was not a claimant in the dispute over territorial rights in South China sea, it was prepared to act, if necessary to protect its maritime and economic rights in the region. "China opposes any unilateral oil and gas exploration activities in disputed area in the South China sea and hopes countries respect China's sovereignty and national interests as well as the efforts of countries within the region to resolve dispute through bilateral negotiations," said an official of China's Foreign Affairs Ministry.

Nearer home, recent developments in the neighbouring Sri Lanka and Maldives cannot but be a cause of concern for India. Along with Myanmar and Bangladesh, Sri Lanka and Maldives are considered vital components of the Chinese strategy of "string of pearls" aimed at encircling India. In addition to lending a big hand to a variety of infrastructure projects in these two island nations, China has already made inroads in the area of space cooperation with both Sri Lanka and Maldives. The immense strategic significance of space cooperation could provide China a powerful platform in the Indian Ocean region to further its geo strategic interests. As such, Indian intelligence and security agencies have suggested that ISRO (Indian Space Research Organisation) should take a proactive role in building and launching satellites for these two vitally located Indian ocean island nations with which India has had a long standing, cordial relations. But then unlike China, which already operates a string of powerful rockets capable of delivering satellite payloads of different weight class to required orbital slots, ISRO lacks the launch power to deliver satellites in two tonne plus class. For currently, ISRO operates a solitary launch vehicle PSLV (Polar Satellite Launch Vehicle), the most powerful version of which is capable of delivering a 1800kg satellite into a polar/sun-synchronous orbit.

On a longer term canvas, Indian Navy has a 30 year plan for inducting 24 new submarines that was approved by the Indian Government in late 1990s. But unfortunately that plan went wrong with not a single new vessel inducted in the one and half decade since. The Indian Navy currently has 14 diesel-electric submarines in its fleet-10 Russian origin Kilo class vessels and four HDW German origin vessels-apart from one nuclear powered vessel borrowed from Russia on a 10 year lease. China on the other had has 60 diesel-electric submarines and 10 nuclear powered vessels in its fleet. As such the need of the hour is to

strengthen the submarine fleet of the Indian navy which is looking at expanding the area of its "operations".

The 37,500-tonne Air Defence Ship (ADS), currently under construction at the Cochin Shipyard Ltd, will be capable of accommodating 30 combat aircraft mix of Mig-29K and LCA Tejas navy. Everything going as planned; this indigenous aircraft carrier will be inducted into the Indian Naval fleet by around the middle of this decade. Looking into the future, Indian Navy has also drawn up a plan to design and develop a vastly improved home grown aircraft carrier as a follow up to ADS. The Indian navy's currently operational lone aircraft carrier Viraat is planned and replaced by INS Vikramaditya which is now undergoing sea trials in Russia.

However, the delay in the delivery of the retrofitted aircraft carrier INS Vikramaditya by Russia is a matter of concern for the Indian navy. This 45,000-tonne class carrier refurbished around Russian decommissioned vessel Admiral Gorshkov was to be handed over to India in December 2012. But problems in the boiler of the carrier revealed during the sea trials of September 2012 implied that the carrier required extensive rectification to render it fully operational. The saga of INS Vikramaditya has been marred by time slippages in delivery schedule and steep cost escalation. India, which in 2004 had signed US\$974-million deal for the retrofitting of this decommissioned Russian vessel, was ultimately forced to cough up US\$2.3-billion. The air arm INS Vikramaditya comprises Mig-29K deck based fighters and Ka-30 early warning helicopters. Sometime back, Indian Defence Minister AK Antony had told the Indian Parliament that the Russia has been asked to deliver the retrofitted aircraft carrier before the end of 2013.

In a major milestone in developing a home grown deck based fighter, the naval version of India's home-grown fighter aircraft Tejas is now getting ready for a flight test involving the crucial ski jump trials at the shore based test facility at Hans air station of the Indian Navy in Goa. The ski jump trial is crucial for establishing the carrier compatibility of the deck based fighter. Derived from the air force version, the naval Tejas is longitudinally unstable fly by wire aircraft making it agile war machine. The flight control system of LCA navy is being augmented with Leading Edge Vortex Controller (LEVCON) aiding reduction in approach speed for carrier landing. Landing gear for Tejas naval has been adequately strengthened to withstand increased landing loads in carrier operations. Phase Two of the LCA Tejas naval envisages the development of a single seat fighter with a new higher thrust engine and further design optimization.

With the kind of capabilities on the anvil, Indian Navy is seriously working towards transforming itself into a credible maritime force to tackle multi-dimensional challenges of the future. Against the fast changing global maritime dynamism, the Indian Navy has drawn up an ambitious plan to take care of the Indian 'interests and assets' across high seas of the world. Indian Navy is clear in its perception that the futuristic threat would be dynamic and could emanate from multiple sources. Perhaps the most striking feature of the on-going programme of modernization launched by the Indian Navy is its thrust on sourcing its requirements through the indigenous routes by harnessing the potential of the Indian industry. The Indian Navy

has already made it clear that its plan for modernization is not China specific but based on the multiple threats facing India.

Indian Navy's vision is to position itself as the third largest fleet in the world. The centrepiece of Indian Navy's modernisation scheme revolves round besides the acquisition of aircraft carriers, the nuclear powered submarines. In 2009, India launched INS Arihant, its first home-grown nuclear submarine. This will give India a nuclear triad, currently capability possessed only by US, China and Russia. Arihant will carry Shourya missile capable of carrying one ton class nuclear warhead with a range of 750-km. The 6,000-tonne plus Arihant equipped with a dozen K-15 ballistic missiles will constitute the robust under sea leg of the Indian nuclear triad.

The Nerpa class Chakra nuclear submarine which India has taken on lease from Russia in tandem with Arihant will give Indian Navy a greater degree of manoeuvrability to hoodwink the enemy's surveillance system and strike hard as they remain submerged indefinitely. Arihant is now close to attaining its operational status. In particular the sea based nuclear strike capability being put in place by the Indian navy would provide credible second strike capability. Incidentally, the nuclear strike capability based on a submarine platform has the advantage in terms of stealth and survivability in case of a first attack. The vision of Indian navy is to operate 150 plus warships of various categories and 500 aircraft including fighter jets, helicopters and maritime reconnaissance aircraft by 2027. However the trump card of the Indian Navy is the Indo-Russian supersonic cruise missile BrahMos which has already been inducted into some of its warships. The 290-km range BrahMos with a phenomenal destructive power has been described as the "most powerful and most formidable" naval missile of its kind.

V. CONCLUSION

There is no denying the fact that the Indian Navy would need to boost by a substantial extent its surveillance and reconnaissance, capability with a view to attain a blue water capability essential to meet the multi dimensional challenges of the future. The Indian Navy, currently the fifth largest in the world, plans to operate three aircraft carriers by the end of this decade. Indeed, air arm holds the key to attaining a credible blue water capability in all its manifestations. Against this backdrop, Indian Navy's maritime doctrine rightly incorporates comprehensive modernization plan for its air arm through a mid life upgrades and modernization of its current aircraft fleet. The induction of Mig-29 multi role fighter aircraft with air combat, ground attack and maritime strike capability, would prove a major force multiplier for the air arm of the Indian Navy. Meanwhile, in a development of significance, Indian Navy's offensive capability will stand augmented with the state owned Kolkatta based Garden Reach Shipbuilders and Engineers (GRSE) launching work on the third corvette with stealth features. With 90% of the indigenous contents, this third anti submarine warfare corvette under Project-28 will showcase India's warship building potentials with domestic resources and indigenous expertise. Aimed at enhancing Indian Navy's underwater warfare capabilities, the warship, is said to be a first of its kind to be fitted with indigenous state of art weapons and sensors. On another front, India's near futuristic naval base is

also set to take shape on the eastern sea board .This vitally situated sea base with an eye firmly set on China will ultimately have underground pens or bunkers to protect nuclear submarines from prying eyes of spy satellites. The project named Varsha to be located close to Vishakhapatnam is considered a counterpoise to China's massive underground nuclear submarine base on the south-western tip of Hainan Island.

And to further bolster its blue water capabilities, the Indian Navy plans to acquire five self propelled Fleet Support Ships (FSS) that should be capable of transferring all types of stores, ammunition, fuel and personnel to naval units. Clearly and apparently, blue water navies boast of large auxiliary fleets comprising longer range fleet support vessels designed to provide support far beyond territorial waters. As part of the plan to boost its long range surveillance capability, in December last, the Indian Navy received first of its eight P-81 maritime patrol aircraft from it had ordered from the American defense and aerospace major Boeing. The P-81 long range surveillance aircraft is well suited for anti submarine warfare. Indian Navy has also decided to exercise the option of going in for additional four P-81 aircraft with a view to strengthen its maritime patrol capabilities as well as counter piracy threats and the growing Chinese influence in the Indian Ocean region.

In keeping with the global trends, Indian Navy has been quite keen on making use of the space assets with a view to projects its combat power in littoral regions with a greater degree of confidence. The plan is to create and sustain a three dimensional, technology driven and satellite enabled network centric system to transform itself into a formidable sea power. To boost its strike capability, Indian Navy is quite keen to link up its long range missiles, radars and air defence systems as well as the sea bed assets to a central room through a highly dedicated satellite network.

Given the practical difficulties involved in guarding long and porous coastal stretch, the Indian Navy is looking at a string of satellites specially designed to take care of maritime security aspects. Against such a backdrop, Indian Navy should be excited over the possibility of the launch of multi band communications satellite GSAT-7 sometime this year by ISRO. This satellite which will serve as the exclusive space platform of the Indian Navy will go a long way towards strengthening the communications network of the Indian Navy to effectively link up its resources spread across the vast and sprawling oceanic region. It is expected to transform the entire maritime domain awareness of the Indian navy. As envisaged now, the satellite will have a 600-700 nautical miles footprint over the Indian Ocean region.

Further into the future, as the situation unfolds, the Indian Navy will look at having dedicated satellite systems for ocean monitoring, weather watch, navigation, surveillance and reconnaissance. 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, electronic ferret satellites and other specialized space birds. Indian Navy should draw inspiration from the fact that India has had a long and chequered maritime and ship building tradition. What is more, the setting up of cultural empire in South East Asia by Indian rulers was a tribute to the sea faring spirit of medieval India.

According to the United States geo-strategist Parag Khanna, who is also the founding director of the Global Governance Initiative at the new American Foundation think tank, "In terms of geopolitics, India's influence is still very limited...What underpins that is the reality that India is not going to be what initially was thought and hoped it would be a land based continental rival to balance China. Now, India is seen as much more a naval power—overseeing and having a strategic role with respect to the Indian Ocean and the trade routes.

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AUTHORS

First Author – Dr. Devakumar Jacob Assistant Professor of
History, L.N.G. College