INDIA'S EXPANDING GRAND STRATEGY AND ITS IMPLICATIONS IN THE INTERNATIONAL SYSTEM

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Abstract. As India changes from being regional middle-power to an aspiring Great Power, it will also change its strategic outreach and strengthen its internal functioning such as strengthening its economy and military power for such initiative. India's strategic outreach towards a more realistic approach will be accepted by countries which are wary of China's expanding military presence. Internally as a part of its Grand Strategy, India will re-arrange its existing Military Command Matrix which will have external connotation as it deals with continental threats from both China and Pakistan. The re-arranged Command Matrix will facilitate its maritime expansion with the Southern Command entrusted in allowing India's Greater Presence in the Indo-Pacific. India's Nuclear Deterrence will further be facilitated by Sea Based Nuclear Deterrence from the SSBN. All these aspects will facilitate India's Great Power status.

Keywords: *Great Power Politics; Grand Strategy; India's Grand Strategy; Civil-Military Relations; US Offshore Balancing Great Power Rivalry*

As an aspiring Great Power in the international system, India will shift its Grand Strategic posture developing its existing continental capabilities for defence-offensive purpose under the shadow of nuclear deterrence and also nurturing its maritime credential thereby venturing as a Great Power in the International System.[1] Further, it will also strengthen the maritime capabilities for power-projection which will have impact on countries that are wary of China's increased maritime assertiveness.

Paradigm Shift in Strategic Calculus

The contours of India's Grand Strategic approach befitting the status of a Great Power will enable an extra-regional power projection to the one that pursues broader political-military strategic objectives.[2] The shift in India's Grand Strategic

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1 Kanti Bajpai, "India Does Do Grand Strategy", Winter 2013, http://globalbrief.ca/blog/2013/03/05/india-does-go-grand-strategy/, accessed at February 20, 2021.

2 Manjeet S. Pardesi, "Deducing India's Grand Strategy of Regional Hegemony from Historical and Conceptual Perspectives", Working Paper No76, April 2005, Institute of Defence and Strategic Studies (IDSS) Singapore.

Thought is predicated on the continued surge in an increasingly complex and technology-driven economy though the South Asian giant has to address some pressing domestic social issues.

Despite that, the strategic shift will contradict the traditional Nehruvian liberal world view (which proposed the Non-Alignment Movement) and the subsequent neo-liberal world view which enabled India's economic liberalization in the 1990's. Though the Nehruvian world-view coupled with the Non-alignment policy allowed New Delhi to punch its weight diplomatically if not militarily through its moralistic commentary, it failed as a credible policy for India's transition as a regional power thereby constraining its effort for a Great Power status in the wider Asian continent.[3] Subsequently, the neo-liberal Grand Strategy followed after the end of Cold War allowed a surging economy through the economic liberalization however it didn't present a clear Grand Strategy format which could be seen to its strategic partners and presented to its alliances.[4] The muddled strategic vision constrained India's voice in international multi-lateral primarily to the point that the South Asian giant's immediate neighbours such as Maldives, Nepal, Bangladesh, Pakistan and Sri Lanka deviated to look outside the region for economic and diplomatic partnerships despite having their traditional roots in the Indian subcontinent.

The ruling BJP as it enters deep into its second term in office wishes to conduct strategic discourse according to the neo-realist principles under the principle of strategic autonomy. Though the neo-realist principles will be challenged on principle domestically, till allow India to project power according to a neo-realist world view, oscillating from hyper-realism or even offensive realism signaling a traditional shift from the Nehruvian world view.[5]

Proponents of Nehruvianism assert the use of force is a regrettable last resort whereas the Neoliberals accept the general state of the international system is a state of war however they believe that the pursuit of economic power supplants military power.

These beliefs about the international system produce corollaries in the ways in which these three schools view the nature of the adversary.

Neoliberals agree with Nehruvians on this point and add that military confrontation is both out of data and unsustainable. Hyperrealists in contrast see war as the natural state and thus preparing for war is not warmongering; rather responsible statecraft.

The three schools differ in their views about the use of force and also in the contextual understand of Grand Strategy. Nehruvians believe that communication, contact and interdependence are more useful in dampening securing India's interests than the use of force.[6]

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[3] Balaji Chandramohan, "Elephant and Dragon", October 1, 2010, https://globalbrief.ca/2010/10/elephant-and-dragon/, accessed at February 20, 2021.

[4] Balaji Chandramohan, "Evolution of India's Grand Strategy by addressing security concerns as a part of its foreign policy and defense policy objective", Volume III, Issue I, Javadpur Association of International Affairs Journal of International Relations, January-June 2016, pp. 17-26.

[5] C. Raja, "Mohan India and the Balance of Power", *Foreign Affairs*, July/August 2006.

[6] Balaji Chandramohan, "China and USA- a Future Cold War", *World Security Network*, July 1, 2010.

For hyperrealists, force is the only means through which a state can secure its interests whether deployed defensively or offensively. The current way in which the Indian military has stood up to China's aggressive posture in the border standoff is very much an offshoot of the hyper-realist approach.[7]

India's Politico-Military Interaction, Defense Planning and Its Impact on the Grand Strategy

India as it aspires for a Great Power status it will develop its military capabilities on its own terms.[8] If China continues on this path, and if the United States manages to narrow differences with India to the west of the subcontinent, New Delhi will move away from attempting to be a swing power, and find itself drawing closer to the United States as a part of its Grand Strategy.[9]

As it expands the external connotation of its Grand Strategy, the contours of India's internal aspect the Grand Strategy are laid out in the various politico-military doctrines. India's military-strategic posture and Grand Strategic approach is reflected subsequently in the Maritime Security Strategy Document (2015), Joint warfare Doctrine (2017) and the revised Land warfare Doctrine (2018).[10]

Strategic postures related to different sizes of India's opponent's forces as well as their respective strategic depths. The impact of the above doctrines could be understood by India's complex civil-military relations and its impact on New Delhi's Grand Strategy.

The three-tiered security system extends from the Cabinet level to that of the three service chiefs. At the apex was the Defence Committee of the Cabinet (DCC) under which was the Defence Minister's Committee (DMC). In 1978, the DCC became the Political Affairs Committee of the Cabinet. At the third level the Permanent Chairman Chiefs of Staff Committee (CSC), in which the three service chiefs have formal equality despite enormous differences in the sizes of the forces and their respective share in the budget.

This structure, which excludes the service chiefs from apex decision-making structures has remained intact over the decades even though this structure is no longer appropriate for contemporary India which is aspiring for a Great Power status.[11]

The above has been somewhat compensated with the appointment of the Chief of Defense staff which helps facilitating its Grand Strategy. India's Chief of

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[7] John J. Mearsheimer and Stephen M. Walt, "The Case for Offshore Balancing. A Superior U.S. Grand Strategy", *Foreign Affairs*, July/August 2016, pp. 1-15.

[8] Krishnappa Venkatshamy, "The Problem of Grand Strategy", *Journal of Defence Studies*, Vol. 6, Issue 3, 2012, pp. 113-128.

[9] Stephen M. Walt, "Alliance Formation and the Balance of World Power", *International Security*, Vol. 9, no. 4, 1985, pp. 3-43.

[10] P. Bratton, and D. Smith, "India's Joint Doctrine: Hopeless Muddle, or the Start of the Strategic Articulation?", 6 June 2017, War Room, United States Army War College.

[11] Christopher Clary and Vipin Narang, "India's Counterforce Temptations: Strategic Dilemmas, Doctrine, and Capabilities", *International Security*, Volume 43, No. 3, 2019, pp. 7-52.

Defense as an institution will co-ordinate the jointless among the three-services and to provide a single-point military adviser to the civilian political-bureaucratic establishment.[12]

Such a model will facilitate for India's image as a Great Power which of course will be facilitated by a Command Structure modelling both China and the United States. Such a re-arranged Command Structure will replicate the US military working under six theatre command for its Global Command Responsibility while China in 2015 shunned seven regional commands. India will likely to have five Theatre Commands. At present, Indian has 19 commands, six of the Indian Army, three of the Indian Navy, seven of the Indian Air Force, one tri-service command at Andaman and Nicobar Islands and the Strategic Forces Command (SFC).

All three forces have separate Eastern, Western and Southern commands. Army and air force also have Central and South-Western commands. Same name, same regions, different headquarters and at times diverging strategic.

The above change in Command matrix will provide the shift from the centralized Soviet rigid Command structure to be an effective force which is capable for Joint Power-Projection to the effective force in the wider Indo-Pacific region and beyond. The sum effect of these changes in force composition and deployment will allow India to develop a blue water joint force expeditionary capability that is increasingly oriented towards the Indo-Pacific as a priority area of operations. USA was the first nation to adopt the theatre command concept as part of a policy that encompassed the entire globe. These 'unified combat commands' are organized either on geographical basis with a defined mission in a specific 'area of responsibility' somewhere on the globe or on a 'functional' basis.

USA has six geographical combat commands and four functional commands comprising cyber command, special operations command, strategic command and transportation command. Each combat command is fully equipped with necessary resources of land forces, air assets, naval vessels and Marine Corps elements. They have integral C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance) capabilities and can seek assistance from any of the functional commands when required.

They can conduct military operations independently. Each combat command has one commander-he or she could be from any service-who reports directly to the President of the USA through the Defence Secretary.

Theaterisation of the command is the next logical step to make the CDS more effective. Without an integrated system and a CDS, combat power (consisting of men and materiel) accretions by individual services remain fiefdoms without the ability to use their awesome power as a single, war-fighting machine. But integrating all the three services into one common war theatre' is a process that is several years down the line. It will involve extensive changes to the current India's military command structure. The Southern Command, which has all three services present in strength, could be the first to be theaterised.

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[12] Planning for Capability Building, March 22, 2018, https://bharatshakti.in/planning-for-capability-building/.

This will involve the creation of a joint HQ with common intelligence, communication, surveillance and air defense systems. Service chiefs will become force creators' and force providers' in charge of planning, training and managing defense budgets in a marked departure from the system worked out during the Independence. An empowered CDS could then be just the silver bullet India's Great Power status and evolving Grand Strategy.

The Department of Military Affairs under CDS will facilitate the restructuring of military commands for optimal utilization of resources by bringing more synergy in operations, including through establishment of joint commands. Further, it will Implement Five-Year Defense Capital Acquisition Plan (DCAP), and Two-Year roll-on Annual Acquisition Plans (AAP), as a follow-up of Integrated Capability Development Plan (ICDP).

Similarly, it is also hoped that the CDS will also hasten the long-pending acquisition plans for modern fighter aircraft, aircraft carriers, submarines, artillery units, and the modernization of C4I2SR system enabling the capability for a network centric warfare.

India's Maritime Strategy in the Indo-Pacific and the Grand Strategic Connotation

India's maritime strategic orientation is disposed towards the rim lands of Eurasia and the military dimension of such a disposition is towards the peripheral littoral areas in the Indo-Pacific (such as the Bay of Bengal, Arabian Sea, and South China Sea) and in the Peninsular such as South Asia, West Pacific and Indo-Pacific region

The above maritime-military thinking which is innately associated the peninsular maritime power constrains India's ability to project power to get effective Command of the Sea unlike an organic naval power.

Further, heralding a shifting paradigm "Ensuring Secure Seas: Indian Maritime Security Strategy 2015" document identified the Peninsular West Pacific region and the surrounding Littorals as the Secondary Area of Responsibility of the Indian Navy.

A second, lesser and yet more complicated divergence involves East Asia and the Pacific. According to the 2015 IMSS, "South and East China Seas, Western Pacific Ocean and their littoral regions is the 2nd among India's maritime 'secondary areas of interest'" (a move up from the bottom of India's secondary interests in IMMS-2007). India's military-diplomatic expansion in the Pacific Ocean will be facilitated as the United States has reorganized its Pacific Command to the Indo-Pacific Command sweeping across both the Pacific and Indian Oceans.

Though the re-arranged command will facilitate US Grand Strategic posture, India will take advantage from the complex Command matrix emanating from that to strut its case for Great Power ambition extending till South Pacific from the South Asian Peninsula. As the US has changed its Command matrix, India will re-arrange its internal military Command structure facilitating the Force Structure and the Strategic Partnerships or alliances that New Delhi will negotiate with countries having stakes in the rim lands of Eurasia.

India's maritime strategic thinking is influenced both by the Soviet maritime strategic thinking and the British/American thinking helping the peninsular nation to develop the complex and sophisticated maritime strategic disposition as it expands its maritime profile and force structure disposition.

If British maritime strategic thinking is an extension on Indian navy's colonial past linkage and continual dependence on foreign military support, Soviet maritime strategic thinking was influenced because of its association with the Eurasian power during the Cold War for its strategic reassurances extending India's naval forces in the Indian Ocean.

In practical terms, Soviet maritime thinking is operationally pegged with India's Eastern Fleet which is tasked with sea-denial and sea control whereas the British maritime strategic influence on the desire to keep the Command of the Sea is entrusted with India's Western Fleet based in Mumbai. The flexibility to get the Command of the Sea is also entrusted with the Southern Command based in Kochi which will oversee operations in the Southern Indian Ocean apart from overseeing operations in the Arabian Sea.

If India's Soviet Maritime Strategic thinking emphasizes operational aspects such as Sea Control, Sea Denial and the Control of Choke Points, then the British/American strategic thinking emphasizes the need to gain Command of the Sea which reflects in having importance of maritime predominance in overall military operations.

Despite the above dichotomous approach, India's maritime strategic thinking morphing as maritime-military strategy will give sustained effort for maritime predominance for overall military operations forming an important dimension of military aspect.

Coming to the concept of sea-denial which involves controlling the littoral seas or denying their use to the adversary, Sea control is the strategy of choice for an ascendant force entailing the higher operational commitment in dictating the tempo of operations in littoral spaces over prolonged periods.

Coming back to the concept of India's efforts to control choke points as a part of securing the Command of the Sea in Indian Ocean the option varies from other Great Powers which tried for simulator effort in the Atlantic and Pacific Ocean where the need to control open seas is a key strategic factor rather than to focus on choke points. Soviet Maritime strategic thinking predominately influences India's submarine programs and its technological dependence, whereas the Anglo-American maritime thinking influences the surface fleet components of the Indian Navy. In an effort to justice to protect its coast and re-enforce its power-projection capabilities, Indian navy has 150 ships and submarines at present. Indian navy's ambitious plan envisages having the necessary competent to about 200 by 2027.

India at present has two Aircraft Carriers which may be increased to three with the proposed INS Vishal (which will be nuclear propelled with US technology assistance). IMMS-2015 does not delineate what roles Indian carriers would fulfil during wartime, other than that they will be a key contributor to sea control, which is "a central concept around which the Indian Navy will be employed."

The carrier traditionally has been regarded as a useful platform for this endeavor, as it is essentially a mobile, territorially independent air base from which aircraft can be deployed to fulfil various sea control–related roles.

During operations, each carrier and its several destroyer and frigate consorts constitute a CBG, and one or two such entities make up a carrier task force (CTF). IMMS-2015 states that each CTF is "a self-supporting force capable of undertaking the full range of operational tasks in all dimensions … [including] Anti-Air Warfare (AAW), Anti-Surface Warfare (ASuW), ASW [antisubmarine warfare], Maritime Strike, [and] Electronic Warfare (EW)," adding that "[d]edicated forces may be attached to the CTF as per mission requirements, such as for conduct of Expeditionary, Out-of-Area, or Amphibious Operations".

Earlier during the BJP government in 1999, the Cabinet Committee on Security approved a '30-Year Plan for Indigenous Submarine Construction', which was to develop two production lines on which six submarines each- named Project 75 and Project 75 (I).

Though the submarine project ebbed and flowed it was developed with interest by the Indian navy despite constrains its domestic ship-building industry. At present, India has 15 submarines, including the nuclear-powered submarine INS Chakra (SSN), the 1st Kalvari class Scorpene submarine, nine Sindhughosh class and four Shishumar class vessels. The second and third Kalvari class submarines are undergoing sea trials. They are likely to be commissioned by the end of 2019.

India will get another carrier task force group as a mobile base for both power-projection and to secure the necessary Command of the Sea. The Indian navy had requested the Electromagnetic Launch System (EMLAS) built by General Atomics for its carriers, a proposal that is reported to have been accepted by the US.

The plan for strengthening the Guam base was in fact the brain child of the George W Bush administration, with a vision to contain China in the Asia Pacific. This was done through the US-Japan Realignment Roadmap of 2006, which envisaged strengthening the base at Guam with relocation from Okinawa.

As a part of the strengthening exercise, it is believed that the US base in Guam will have an air and missile defense taskforce with 10,552 US marines. Further options for strengthening the base in Guam include having a second Amphibious Ready Group with navy ships to transport a marine expeditionary unit. India is in the front rank of Australia's international partnerships, alongside the US, Japan, Indonesia, and China, although for some time Australia has idled in the middle ring of India's foreign priorities.

QSI 2.0 envisages operational and strategic co-operation among India, the United States, Japan and Australia. Perhaps most importantly for the future, it also allows for further co-operation with such other regional actors as France, Vietnam and Indonesia. All of these nations have one common strategic concern: The People's Republic of China's growing military presence in the Western Pacific.

The Western Pacific Rim features prominently in Chinese naval expansion as a part of its "island chain" strategy (where Chinese naval power is projected to expand from inner to outer island chains extending deep into the Pacific).

Contrasting its approach to the Pacific Ocean, China approaches the Indian Ocean (Bay of Bengal and Arabian Sea) through its "string of pearls" geopolitical concept which involves the building port facilities in countries such as Bangladesh, The Maldives, Pakistan, Sri Lanka and Sudan which serves the dual purpose.

Between the two approaches, China has the potential to exercise or at least dispute control of major chokepoints linking East Asia, Southeast Asia, Central Asia and the Persian Gulf, which from an Indian naval perspective is tantamount two being encircle at a tactical-operational level. BRI seeks to connect China to Europe via Central Asia, the Mediterranean through the Persian Gulf and South Asia via the Indian Ocean." It encompasses 70 countries in Asia, Africa and Europe and envisages an investment ranging between $1 and 8 trillion for constructing roads, railways, ports, airports, and oil pipelines. The Indian Navy's Maritime Security Strategy document 2015 shifted the focus on India's maritime strategy stressing the importance to acquire the Sea Lanes of Communication facilitating the crux of the political-military (or Grand) Strategy.

The postural shift from the Asia Pacific to Indo-Pacific is much more focused on countering Beijing's First and Second Island (Indo-Pacific) and not the third island chain (Asia Pacific).

As China has focused on expanding the South Sea Fleet rather than the North and East Sea Fleet in the last ten years focusing on the Indo-Pacific rather than the whole of Asia Pacific which excludes the Western Indian Ocean. Complementing and reinforcing the BRI is the PLA Navy's Two-Ocean Strategy for establishing control over the Indian and Pacific Oceans.

On the other hand, the military alliance between US, India, Japan, and Australia will morph in to a defense-strategic alliance similar to the North Atlantic Treaty Organization (NATO) Differing entirely from the Quad 1.0 which was primarily a maritime strategy involving naval strategy.

Therefore, Quad 1.0 operationally didn't attribute to the Command of the Sea or Sea Denial largely ignoring the issues at the Operational Level necessary to build alliance thereby having an impact at the Strategic and the Grand Strategic level. Signaling a paradigm shift, apart from the four countries which are in the maritime alliance of the Quad 2.0 there is a chance that other maritime countries in the Indo-Pacific such as France and Indonesia might also join the alliance to raise their stakes in the alliance.

France being a member of the NATO might not be obligated to join the Quad formally as a part of its strategic alliance but Paris will help facilitate the Quad in practice as it has territories and military bases in both the Western Indian Ocean and South Pacific.

However, France as it extends its strategic alliance with India and Australia it will facilitate the former's military ambitions in the South Pacific besides facilitating the latter's strategic expansion in the Indian Ocean.

On the other hand, Indonesia will also co-operate with the proposed Quadrilateral Security Initiative by participating in operational exercises such as Malabar. Indonesia as it joins the Quad as a part of its maritime strategy will nullify the proposed Second Island Chain. It's understood that Hainan Island is a critical element in the "Second Island Chain" strategy which provide bases for combat aircraft operating around the Indonesian archipelago, the Australian "Sea Air Gap" and the southern approaches to Guam. Hainan Island has six airfields, three of which are semi-hardened/hardened fighter bases.

The other three are dual-use civil airports, two of which have 11,000-foot runways capable of accommodating long range aircraft. Burma/Myanmar, with four runways exceeding 11,000 feet in length, supplements Hainan Island by covering the western arc out of south- East Asia through the Andaman Islands.

India's maritime diplomacy in the South and East China Seas, Western Pacific Ocean, and their littoral regions, the IN's secondary area of interest suggests that there is growing and significant Indian activity in this region despite its characterization as a lower priority than regions to India's west and immediate Indian Ocean neighborhood.

China and Russia have independently strengthened their maritime cooperation and since 2012, the People's Liberation Army Navy (PLAN) and the Russian Navy have been coming together for Joint Sea exercises every year. With China increasing its naval presence in the Indian Ocean Region amid the Northern Border stand off the Indian Navy is keeping an eye on the 'dragon' with the help of its 'eye in the sky', Gsat-7, the Navy's own dedicated military satellite that was launched on September 29, 2013.

Further, India has roped in advance satellite technology to monitor the Indo-Pacific region. The 2,625-kg satellite, named 'Rukmini', has helped the Navy monitor the Indian Ocean Region (IOR) as it has a nearly 2,000 nautical mile 'footprint'. The multi-band communication-cum surveillance satellite. With the help of the shore-based operational centers, 'Rukmini' provides wide range of service spectrum from low bit rate voice to high bit rate data communication, has given the Navy an integrated platform and helped it overcome the limitation of 'line of sight' (the straight path of signal when unobstructed by the horizon). With the help of this 'eye in the sky', the Army, too, gets vital inputs about over-the-land movements.

This is the second of the indigenously designed Netra airborne early warning and control (AEW&C) systems, which will help in adding more strength to the IAF's network-centric capabilities. The AEW&C system is an indigenously developed & produced airborne surveillance system by the Centre for Airborne Systems (CABS), Defense Research and Development Organization (DRDO) and will be mounted on Brazilian Embraer aircraft. Developed in India, the AEW&C system comes with an active electronically scanned array (AESA) radar, it has a secondary surveillance radar, electronic and communication countermeasures. The system is mounted on an Embraer-145 aircraft and has been designed specifically to suit the operational requirements of the IAF. It is a proverbial "Eye in the Sky" and has a state-of-the-art integrated system which

has multiple sensors, giving it an ability to pick up low-level targets deep inside the enemy's airspace. It also has the capability of air-to-air refueling.

The first was inducted in service in 2017 and since then has been providing Air Defense surveillance and control from different terrains stretching from Jammu and Kashmir, Rajasthan and to the Rann of Kutch. From the time of its induction, it has participated in all major exercises conducted by the IAF in the last two years including the Ex-Cope India 2018. In Ex-Cope India it was controlling both the Indian and the US fighter aircraft. According to the IAF, this force multiplier has also undertaken the first-ever Air-to-Air refueling by any transport aircraft. With the induction of this indigenously built AEW&C aircraft, the IAF gets more potent and helps in its operational capability.

PSLV-C45 carrying Emisat and 28 foreign satellites is yet again a demonstration of India's growing space prowess. The foreign satellites include a majority from the US, and the rest are from Lithuania, Spain, Switzerland and goes to show India as an attractive destination when it comes to launching satellites, significant for the Indian payload given the growing Indian defense requirements. Emisat is a reconnaissance intelligence satellite meant to keep a watch on and provide location inputs on enemy radar sites deep in the enemy territory, a function that was done by using electronic warfare planes until now.

It is a very powerful electronic intelligence/surveillance satellite which has been developed in India jointly by ISRO and Defense Research and Development Organization (DRDO). This satellite is going to be used for intercepting signals not only on the ground and at high-resolution from space but also for the Indian Navy. EMISAT, weighing 436 kg, is intended for electromagnetic spectrum measurement and will be placed in an orbit of about 753 km altitude. It has been developed by DRDO (DLRL Hyderabad) under Project KAUTILYA.

ISRO is trying to put EMISAT in a high-elliptical orbit, which is expected to give the satellite enough time for picking up signals from a specific area on the ground and recording them. It has been developed for monitoring radar network by India. It is an ELINT satellite based on IMS2 Bus (Indian Mini Satellite Bus series) which can have a maximum launch weight of 450Kgs with a payload no more than 200kgs. It shares the same Bus architecture as the HySIS satellite which was launched in November last year. The satellite will be placed in an elliptical orbit so as to optimize the dwell time, for a required area under observation.

The Indian Defence Ministry's annual report of 2013-14 mentioned about Project Kautilya – for Space Borne ELINT System which involves the development of Electronic Intelligence payload for integration on an indigenous mini satellite. The ELINT includes recordings and analysis of intercepted signals and helps create an RF signature of a radar which can, in turn, be used for locating and quickly identify the radar in subsequent encounters.

Although the launch of an electronic intelligence (ELINT) satellite is a significant achievement for India, ELINT satellites have always been used, but in triplets, by other nations, such as China. A single satellite will not be enough to pinpoint a target, and it needs at least three of them to receive electronic

transmissions from any target on the ground and fix its position by triangulation. A typical ELINT satellite constellation consists of three satellites in orbit, flying in a triangular formation, the orbit inclination being 63.4 degrees.

China, for example, has a range of signal intelligence (SIGNIT) satellites and has been launching them since 2006. The Yaogan series of satellites, operational since last 13 years, have been employed by the Chinese military for intelligence-gathering purposes. The Yaogan 9 (Yaogan 9A, 9B, 9C), Yaogan 16 (16A, 16B, 16C), Yaogan 17 (17A, 17B, 17C), Yaogan 20 (20A, 20B, 20C), Yaogan25 (25A, 25B, 25C) and the Yaogan 31 (31A, 31B and 31C) were all launched in triplets, mostly on single rockets, which formed what was called an ELINT satellite cluster.

Though China has officially being denying the fact that these satellites have ELINT sensors, it understood the space-based surveillance, mainly for identifying, locating and tracking an aircraft carrier in the Pacific Ocean. The Chinese analysts have been opining that the People's Liberation Army (PLA) may form a network of the SAR, ELINT and electro-optic satellites in orbit to survey an area of interest in less than 40 minutes.

China is also building up its own version of GPS – BeiDou Navigation Satellite System (BDS), which started services in 2000. The BeiDou is expected to also serve the countries along the Belt and Road from this year. The BDS is expected to have 35 satellites by 2020. The launch of an electronic intelligence satellite is step by India to shore up its space surveillance capabilities and truly be a space power. The first EMISAT should immediately be followed by at least two more such satellites to give India's defense a real edge, considering such assets give optimum output they are in a constellation at different locations around the globe.

The entire development project was completed in eight years and is modelled on Satellite with ARgos and ALtiKa (SARAL): a co-operative altimetry technology venture for oceanographic studies between the ISRO and France's National Centre for Space Studies (CNES). The EMISAT is a derivative of the ISRO's Indian Mini Satellite-2 (IMS-2) series of electronic intelligence satellites, which has a maximum launch weight of 450 kg and a payload of no more than 200 kg.

EMISAT is likely to be placed in an elliptical orbit to optimize its "dwell time" for a particular area under observation. Out of the total 47 operational satellites, India currently has six to eight satellites which are used entirely for military purposes. There are four Cartosat-2 series satellites (2C, 2D, 2E, 2F) and Gsat-29 satellite besides Risat-2. The proposed Aerospace Command (presently an Agency) encompassing combat elements including military satellites and newly tested space defensive system could be placed under CDS, but ISRO must remain an independent entity as hitherto fore Though India voted against missile defenses during the Cold War, it's now keen on developing and fielding a sophisticated ballistic missile defense to protect itself from its nuclear adversaries. Its ASAT capability is a direct offshoot of its BMD program. Second, since BMD being a defensive system is employed in a reactionary mode, it is almost impossible to reach and intercept a missile in its boost phase. When the

BMD is used as a direct ascent ASAT weapon, it can carry interceptions only in lower earth or sub-orbital levels. Since India began a Ballistic Missile Defense (BMD) program in the early 2000s, the ASAT weapons have been on New Delhi's radar. In the last 15 years, India's maturing BMD capability along with the significant progress it made in its missile program gave Indian scientists enough confidence to undertake an ASAT test.

The Tiger Truimph involving the Indian Navy and, on the American side, the U.S. Indo-Pacific Command, Central Command, and Africa Command. Its intention is "to expand similar cooperation between their respective Armies and Air Forces" to supplement the yearly Malabar exercise. All this is no bad thing.

Moreover, placing an Indian officer to liaison with U.S. Naval Forces Central Command, and inviting the US military to the 2020 MILAN multilateral naval exercise to support "capacity building efforts in the Indo-Pacific" is also fine. Except, all the military exercising, forging service-to-service links, and MROs are essentially cover for the two things Washington has been desperate for: (1) the implementation of the Communications Compatibility and Security Agreement (COMCASA) for "secure communication capabilities between the Armed Forces, including the Armies and Air Forces" and (2) the Industrial Security Annex (ISA) facilitating the exchange of "classified military information between Indian and the U.S. defense industries". Unfortunately, ISA seems designed by Washington to prevent Russian military hardware from being manufactured here under license. There is only one aircraft carrier – INS Vikramaditya that was commissioned in 2013 – at the moment while a second Indigenous Aircraft Carrier (IAC-1) is under construction, which will be ready by 2022.

The induction of the Boeing P8I (Poseidon Eight India) Long Range Maritime Patrol and anti-submarine warfare capable aircraft in 2013 has brought about huge jump in the deterrence and attack capability of the Indian Navy. The P-8I aircraft is equipped for long range anti-submarine warfare, anti-surface warfare, intelligence, surveillance and reconnaissance in support of broad area, maritime and littoral operations.

Strategic Importance of Andaman and Nicobar Islands and its Impact on New Delhi's Strategic Approach

India's Grand Strategic objective of having permanent blue-water presence in the Indo-Pacific through joint force projections will be achieved as it converts the present outpost of the Andaman and Nicobar Islands situated in Bay of Bengal to a permanent anchorage as a fleet operating position capable of power-projection.

The co-operation between India, the United States and Japan in the Andaman and Nicobar Islands may not stop with the installation of acoustic systems and a joint project to lay an undersea optical fiber communications cable from Chennai to Port Blair has been completed and it will be integrated with the existing US-Japan "Fish Hook Undersea Defense Line" network enabling to track Chinese submarines in the Indo-Pacific. The Fish Hook network called as tripwire around the Chinese navy extends across the Tsushima Strait between

Japan and Korea, and from Japan's southern main island of Kyushu down past Taiwan to the Philippines. The curve of the hook stretches across the Java Sea from Kalimantan to Java, across the Sunda Strait between Java and Sumatra, and from the northern tip of Sumatra along the eastern side of India's Andaman and Nicobar island chain. Unlike the northern stretches around Japan and Taiwan where the network involves close Japanese and American collaboration, these extensions into Southeast Asia would be largely American installed and operated.

This is an important element of controlling the Indian Ocean operation of China's South Sea Fleet which will influence Canberra's effort to join in the installation of the sound sensors as this will also help Australia in projecting its influence in the Indian Ocean and, aid in tracking the movements of Chinese submarines in the wider Indo-Pacific region. Fish Hook network will be extended to the Lakshadweep islands in the western Indian Ocean which will aid Indian Navy's surveillance missions which were improved with opening of a Naval Detachment (NAVDET) at Androth Island, in the Lakshadweep archipelago. The NAVDET would extend the Indian Navy's presence at Androth by providing a communication network to connect with the mainland especially with the Southern Naval Command based in Kochi.

Over the last two decades, India has constructed a new base for the Eastern Fleet south of Vishakhapatnam and sophisticated naval and air force facilities in the Andaman and Nicobar Islands. These islands constitute a seven-hundred-mile chain at the western approaches to the Malacca Strait, and provide the perfect basis for projecting power into the Malacca Strait. The Eastern Fleet apart, the aircraft stationed at this base have an operational radius sufficient to project power into the Malacca Strait and into extensive areas of the South China Sea. Additionally, Indian Special Forces conduct regular training operations from the Andaman Islands base. The islands have received much attention in Beijing, with one Chinese analyst describing them as a "metal chain" which could lock the western end of the Malacca Strait. The militarization of India's east coast and the approaches to the Strait of Malacca are a clearer indication of India's intention to be the predominant power in the Bay of Bengal and the Andaman Sea.

On the other hand, its expected India will exploit the full military potential of Bay of Bengal islands by taking following actions: – (I) position a fleet of naval warships with Landing Platform Docks (LPDs) in the ANC by 2020. (II) Ship based nuclear arsenal and missile defense system which will be placed in the islands for deterrence.

Further, it's expected that India will deploy large number of sensors along with AIS (automatic identification system) and LRIT (Long Range identification and tracking) further with the use of HUMINT (Human Intelligence) and TECHINT (technical intelligence) which enable the command for network centric operations. This will help India reach the real time data fusion as well as assist the region with identification operations with seamless connectivity. India's ambition to get three Fleet navy is predominately in sync with British Maritime Strategic thinking envisaging three fleets in the South Asian peninsular with

Portblair, Trincomalee and Maldives forming anchorage for effective sea control and power-projection in the Indian Ocean. At present, Indian Fleet number are over 100 combat naval vessels, of which 15 are submarines, 2 are aircraft carriers, and another 23 are destroyers and fast frigates. Apart from that 56 warships and the aircraft carrier, 32 ships, and submarines are presently under construction at different Indian shipyards. These include the aircraft carrier, Vikrant, P-15B Class Destroyers, P17A class stealth Frigates, P28 ASW Corvettes, Offshore Patrol Vessels and Scorpene class submarines. Reinforcing its commitment to the submarine plan, India will add 18 conventional submarines, six SSNs and four SSBNs for effective deterrence which will double up for power-projection. By 2027, India Navy's re-orientation towards a three-fleet blue-water navy by having flexible Command will enable India to attain such stature.

Contrarily, to negate its continental security threat from Pakistan, India has one base outside its borders in Tajikistan (Ayni) in Central Asia as a part its Air Force Contingent. Coming back to the maritime domain, it's expected that India will have bases in Maldives, Seychelles' Assumption Island at the approaches of the Mozambique Channel chokepoint, Agaléga Islands in Mauritius, Duqm port in Oman and in Penang in Malaysia exponentially in the years to come.

Further, it's expected that India will have military base in Cam Ranh Bay (Vietnam) thereby gaining access to the important South-China Sea. Integrating the Andaman and Nicobar as a part of its strategic fleet operations will reduce India's need to expand its navy, by increasing the number of available vessels by roughly 40 per cent, from 137 to about 200. To India will embark on a three-fleet navy thereby increasing the range and scope of its existing naval command infrastructure based in the Andamans and Nicobars. After the end of the Cold War, the United States administration envisaged Far Eastern Naval Command based in the Andaman and Nicobar Islands with joint funding from both the US and India. Though the project could not see the light of the day, India re-arranged the Andaman and Nicobar Islands as a part of its Tri Command Service which will be anchored as India's Third Fleet as a part of its maritime power-projection.

Further, a major new sea base being built on India's eastern coast will be home to the first indigenous aircraft carrier, INS Vikrant, and an armada of warships under the Eastern Naval Command. The new base at Rambilli will decongest Visakhapatnam and will serve as a new base for the Eastern Command much like INS Kadamba based in Karwar. It is home to the aircraft carrier INS Vikramaditya, and much of the western fleet. Being built in several phases, that project is code named 'Project Seabird'. The new base, on the Bay of Bengal, will also house India's nuclear ballistic missile submarine (SSBN) force. Current plans involve building six SSBNs, to form the underwater leg of the country's nuclear triad. The first, INS Arihant, will soon be operational; the second and the third are currently being built which will come into force in next seven to eight years.

India's eastern seaboard on the Bay of Bengal, with deep water and harbors with over 10 m depth, is suited for nuclear submarine and aircraft carrier base rather than the western seaboard, where the shallower Arabian Sea is barely

four-meter-deep along the coast. Like China's massive nuclear submarine base at Hainan Island, the depth of water at Rambilli will allow submarines to enter and leave the base.

With INS Vikrant harbored in Rambilli after the aircraft carrier is commissioned in 2018, the naval air base at Visakhapatnam – INS Dega – is being expanded to house the Vikrant's MiG-29K and Tejas fighters and its helicopters when the carrier is not at sea. The above Force re-structuring will facilitate India's Grand Strategic approach and re-arrange its existing Command Matrix. That Grand Strategic approach will be facilitated when India creates three integrated theatre commands, by rearranging its existing command structure. The Command matrix will be arranged as a northern command for the China border, a western command for the Pakistan border and a southern command for the maritime role. Since the borders with Pakistan and China are on land, if this restructuring goes ahead, army generals will inevitably head the northern and western commands, while an admiral will be responsible for the southern command.

As with the Southern Command's maritime engagement, the Andaman and Nicobar Islands Command which will be now under the permanent command of the Indian navy will be responsible for India's maritime-military engagement with the South-East Asia and well beyond to the South Pacific in the next five to 10 years. It's expected that the Tri-Command services will be integrated as a flexible Command options with the Five Power defense agreement regional multilateral security arrangement.

The main emphasis, however, is on augmenting the Indian Navy's maritime surveillance capabilities. A significant military infrastructure build-up is taking place at the airbase in Campbell Bay, located at the southern tip of the Andaman archipelago. With a refurbished 3,000-metre airstrip, India would finally be able to operate its flagship P-8I maritime surveillance aircraft from the base. The Indian Navy is gearing up to take the PLAN's challenge head-on. A military base in Cambodia would provide Beijing with several strong advantages.

It would increase China's footprint in Cambodia and extend its influence in South-East Asia. It would also enable China to monitor and possibly control maritime traffic from the Malacca Strait into the South China Sea without having to overly rely on ships based at Hainan Island. If a canal across the Thai isthmus were actually constructed, moreover, a military base in Cambodia could offer China the ability to monitor it without having to build a base on Thailand's west coast as well as one on its east coast, thus mitigating any Thai concerns. Even if a canal is not built, a base in Cambodia would enable China to keep watch over Thailand's expanding military exercises with the US.

As China will the develop new class of guided-missile attack submarines and commission up to 20 Yuan-class air-independent propulsion subs. All up, this represents a formidable mix of conventional and nuclear capability, one that will continue to be the largest submarine force in Asia, and a force that will increasingly become more capable of long-range operations extending till South Pacific if not beyond.

As it wishes to develop its nuclear submarine capabilities reflected in India's Maritime Doctrines (2004, 2009) and also in the Maritime Strategy Document (2007-2009). Interestingly, the case for the acquisition or development of particular platforms, especially nuclear submarines, was far less prominent in Freedom to Use the Seas 2007 and Maritime Strategy than it had been in Indian Maritime Doctrines.

For communicating with its emerging nuclear fleet, which already includes the INS Chakra, an Akula 2 leased from Russia, and soon the Arihant, the IN has set up a new very low frequency (VLF) transmitting station at INS Kattabomman near the southern tip of mainland India. INS Kattabomman is advancement over an existing VLF station located in its vicinity, which was established in the 1980s with U.S. help, in terms of range and data transfer capability, among other aspects. In 2010, the Indian Navy authorized the construction of two new transmitter towers at INS Kattabomma started operating with both the Very Low Frequency and Extreme Low Frequency. It's expected that near the Eastern Fleet another work on the ELF facility will be developed.

When SSBNs are on deterrent patrol, they must avoid rising too close to the surface for fear of detection. Instead, communications must be sent via very low frequency (VLF) or extremely low frequency (ELF) messages. VLF can penetrate ocean waters up to 20 meters, whereas ELF can reach far greater depths, but at a lower data rate – which means that the messages take significantly longer to transmit. Typically, SSBNs are instructed via ELF to rise to VLF depth in order to receive longer messages. At an advanced stage, it's expected that in the next five to 10 years, India navy as it engages with the US will develop blue green laser communications and that arrangement will be integrated India's anti-submarine warfare techniques.

India's approach to the maritime nuclear deterrence was studied by the Royal Australian Navy as Canberra decided to award the contract of 12 new submarines to France. If Australia decides to develop nuclear submarines it will exchange and co-operate with information. Owing to the range of the K-4, the general patrol areas of the Arihant class boats fielding this missile will lie in locations such as the Andaman Sea where IN surface and air assets will be able to keep over watch. Moreover, launches from around the A&N archipelago can traverse azimuths that may be able to avoid China's future ballistic missile defenses (BMDs) altogether. INS Arihant, commissioned with little fanfare in 2016, constitutes a critical factor in India's status as a rising power and its efforts to deploy credible nuclear and naval forces. Its deployment in the Indian Ocean will bolster Indian naval force projection in the wider Indo-Pacific. It also underscores India's intention to develop the full nuclear triad of land, air and sea forces capable of deploying nuclear weapons. It thus represents another component of the great power status desired by New Delhi.

Submarines are of basically three types – the large nuclear powered and nuclear armed strategic ballistic missile submarines (SSBN), the nuclear powered and conventionally armed attack submarines (SSN) and the conventionally powered diesel-electric submarines (SSK). India is one of only six countries that

operate nuclear submarines – the others being the five permanent members of the UN Security Council – USA, Russia, UK, France and China. Of these, only Russia, China and India operate all three types of submarine because of the nature of the maritime threat in their littoral. The Eastern command is home to the Indian Navy's submarine arm.

The first successful deterrent patrol by the indigenously built Indian SSBN INS Arihant last year completed the nuclear triad of land, air and sea response vectors. SSBNs are the most credible second-strike platforms because of their attributes of stealth, concealment and enough firepower to deliver devastating effect. However, for this to be credible, continuous deterrence-at-sea including plans to induct five SSBNs over the next few years. SSNs constitute the cutting edge of a navy's offensive capability. Their high speed, stealth characteristics, unlimited endurance and lethal weaponry make them the ideal platforms to shape the littoral maritime battle space besides being an asset for expeditionary deployments, either alone or in formation with a Task Force I.

In 2015, the Government of India approved a plan for the indigenous construction of six SSNs and the work on its design is already in progress. It is expected to have a much larger reactor than the 83 MW reactors on Arihant. These submarines should begin entering service by the end of the next decade.

India has made considerable progress in developing a robust underwater nuclear deterrent it will sort out various problems before the naval component of its nuclear triad is deployed and fully capable. The introduction into service of up to five additional Arihant-class ballistic missile submarines may also bring with it questions of doctrine.

The first technical challenge, the successful integration of ballistic missiles to the nuclear submarine platform, has been overcome as indicated by the operational readiness and testing of Arihant. Second, the operational success of the miniaturized nuclear reactor that powers Arihant was also confirmed under the duress of extensive sea trials. While the nuclear submarine force will grow in number as more Arihant-class boats are commissioned, the first vessels at least are unlikely to be a major component of India's nuclear deterrent force. In fact, some sources in the navy have characterized the commissioning of the first-in-class INS Arihant as a technology demonstrator, rather than a robust deterrent projector. On the other hand, the Arihant-class boats may create doctrinal ambiguity if they result in moving the peacetime deployment of India's nuclear force away from a low-level alert status and towards immediate operational readiness. Such a posture would give more teeth to India's maritime – Grand Strategic approach as it a move away from India's declared principle of 'credible minimum deterrence', as stated in its 2003 Nuclear Doctrine.

As a part of its commitment to the Maritime Strategy Document 2015 which envisaged an undersea deterrent force of between four and six fully operational nuclear submarines. Given the Arihant's history of delayed deadlines, it is likely to take ten to 20 years before India can boast a force at that level. As a part of the Project 75(I) programme is creating a deficit in the Navy's full spectrum capability and in addition is included in the Transfer of Technology (ToT)

package. Internally, the ambitious posture of the Indian Navy, with its undersea nuclear deterrence capability, means that it serves as a tool to allow the other two services to rearrange their existing command structures, including the Strategic Forces Command.

The Strategic Forces Command will provide credible nuclear deterrence towards both Pakistan and China. In that way, the Deterrence will do justice Nuclear Doctrine 2003 which envisaged India's Grand Strategy by placing the Nuclear Deterrence as an important means. Apart from that, as India's nuclear submarines are to be held under the Tri-Command Service functioning under the Strategic Forces Command the power- projection in the whole of the Indo-Pacific will be amplified through the Joint-Service approach thereby providing greater credibility for India's Power-Projection and Great Power Status.

Despite that, India will follow a "Close aboard Bastion" (developed by Russia and China) strategy rather than putting its SSBNs on constant patrol in open seas which is largely adopted by the Western Countries. A "bastion" or a "citadel" model entails operating submarines in waters close to home and away from hostile forces. In fact, Indian SSBNs would not operate alongside the Navy's conventional fleet as any coordination could lead to the nuclear submarines' exposure by enemy intercepts of fleet communications. Thus, Arihant's operationalization should not lead to a conclusion that its nuclear weapons are now fully mated with delivery systems and that control has shifted to the military and in contrary India has strived to ensure complete political control of its nuclear assets at sea, ruling out any unauthorized use.

On the flip side of the argument, the commissioning of Arihant, benefitted from Russian technology, reinforcing New Delhi's reluctance to enter into an explicit strategic alliance with the United States. In fact, the reluctance among the Indian defense services (including the Navy) towards signing the Communication and Information Security Memorandum of Agreement (CISMOA) and Basic Exchange and Cooperation Agreement for Geospatial Cooperation (BECA) with the US, partly emanates from such concerns and so the S-400 Triumf missile shield from Russia.

However, signing the CISMOA and BECA will help to secure and encrypted communications, and satellite navigational aids for the anti-submarine warfare capabilities. eight Boeing P-8I (Poseidon) Neptune Aircraft – with an option for four more – constitutes perhaps one of the most encouraging developments, as it will significantly enhance the Indian Navy's ability to conduct long-range maritime reconnaissance and ASW. COMCASA, is an 'Open Sesame' for the US formally to penetrate India's most secret communications grid, including the nuclear command and control net.

It can then potentially interfere – if it isn't able to do so already without the COMCASA, with the communications between the PM (the final nuclear firing authority) and SFC in any crisis. Presently based at Rajali, in Tamil Nadu, India's P-8Is as its integrated to India's Eastern Naval Command will allow the Indian Navy to greatly enhance its maritime and littoral surveillance capabilities over the Bay of Bengal, as well as its ability for maritime interdiction and ASW.

India's Foundation Agreements with the US and its Impact on India's Capability Building

Indian government as it operates the new military pact called the Communications Compatibility and Security Agreement (COMCASA) with the United States it will tighten the strategic alliance with the United States. The COMCASA is the most recent nomenclature for a pact the US proposed to India more than a decade- and-a-half back. Earlier known as Communications Interoperability and Security Memorandum of Agreement (CISMOA, India has been hesitant because of fears that such a pact could compromise its military-grade communications equipment which started to change following the Malabar 2017 exercises when both Indian Navy and US Fifth and Seventh Fleets started their operational exercises using real time encrypted messages.

The COMCASA will allow Indian Navy to get the Encrypted Communications in real time from the United States. COMCASA will allow integration of the communications networks and systems enabling the two sides, for example, to mount military actions together, assist unit and higher echelon commanders to converse with each other in peacetime and war, using real time communications links, and to share classified data and information developing the necessary interoperability. Additionally, given India's access to previously restricted U.S. defense technology exports following its 2016 designation as a Major Defense Partner, COMCASA will open up the possibility of India importing U.S. systems unencumbered by possible limitations on guidance, communication, and sensor technologies.

Apart from the COMCASA, the Indo-US co-operation maritime security co-operation will be facilitated with the recent signing of the Logistics Exchange Memorandum of Agreement. Though the original LEMOA was meant for the whole of Asia-Pacific, the new arrangements with the Logistics arrangement will help things to tighten till the Indo-Pacific. LSA, as its understood will permit the military forces of each country to resupply and replenish, and stage operations out of the other's military air bases, land facilities, and ports; as per the tents of the LEMOA, Indian maritime forces will access Guam and other US military bases in the Western Pacific and also the Diego Gracia base in the Indian Ocean.

The Quadrilateral Security Initiative 2.0 will also facilitate the Basic Exchange and Cooperation Agreement (BECA) which is the other pact that would set a framework through which the United States could share sensitive data to aid targeting and navigation with India.

BECA will facilitate the exchange of sensitive information picked up by sensors on satellites and other space-based platforms. Based on a review of active agreements registered with the U.S. Department of State (DOS), the U.S. government has BECA or similar geospatial or mapping data-sharing agreements with 57 countries, including partners such as Indonesia (1977 general mapping) and allies such as France (2006 geospatial intelligence exchanges). The BECA will be linked to India's emerging Anti-Satellite weapons system which is built upon India's Ballistic Missile Defense (BMD) program. BECA will facilitate India to have operational military advantages as it enables Indian missiles and combat aircraft to target coordinates. The BECA agreement enables India to

receive advanced navigational aids and avionics on U.S.-supplied aircraft. To date, the absence of an agreement has affected the navigational and flight management systems that India could procure for its purchase of C-17, C-130J, and P8-I aircrafts. BECA agreements are intended to function as umbrella agreements wherein various components of US Department of Defense / U.S. National Geo Spatial-Intelligence Agency's (NGA) "geospatial information bank." NGA and their Indian counterparts would conclude subsidiary arrangements on a one-time or semi-permanent basis for exchanges of specific types of data and data feeds. The Operational extension will involve exchange of mapping data for a particular exercise or agreement, mapping data to produce aeronautical and nautical charts, mapping data to support a particular defense system, or an agreement to conduct a joint hydrographic survey in an area that is uncharted.

The agreement's terms would likely envision reciprocal exchanges of data for defense, peacekeeping, or humanitarian assistance reasons without any payments of royalties or license fees and are designed to facilitate mutual technical assistance and joint gathering of data (including hydrographic data in unchartered waters via survey. The usual terms also provide for joint visits of people involved in implementing projects under the agreement, no commercial or third-party transfers of the data exchanged, and the usual boilerplate language in DOD agreements to mutually waive claims and resolve any disputes through negotiation.

Despite that, it's understood both BECA and CISMOA will facilitate anti-submarine warfare which will be integrated into the newly developed Multi-Domain Operational concept developed by the United States. The Multi-Domain Operational Concept developed though its predominantly an Air-Land combination, its understood that the range and scope of the operational concept will be included in the Indo-Pacific through a Joint Service approach. The signing of the COMCASA will allow India to access advanced technologies from the U.S for military platforms like of P-8I and C-130 J aircrafts which comes with secure communication systems. At present, India is forced to use lower-grade commercially available equipment and by availing U.S. origin radio, communications security (COMSEC) and navigation equipment will give necessary edge over other systems.

Another important operational advancement with the Quad initiative will be co-operation on the Coalition Information Sharing Network or the Combined Enterprise Regional Information Exchange System (CENTRIXS) which is a collection of classified coalition networks, called enclaves which supports the supports the US combatant commands throughout the world, including the U.S. Pacific, Central and European commands. (CENTRIXS).

The receivers fitted in Indian Navy assets will be a part of America's Combined Enterprise Regional Information Exchange System or CENTRIXS for short, a system described by the US Navy as a "collection of classified coalition networks" that support combatant commands throughout the world. CENTRIXS is a backbone of secure tactical communication between America's closest military allies, of which India is one.

And the reason New Delhi will now have access to CENTRIXS is because of its decision to sign the Communications Compatibility and Security Agreement

(COMCASA), a "foundational agreement" that has the potential of transforming the way in which the intelligence and armed forces of the US and India work together. In simple terms, this is the next step up for the armed forces of both countries, well beyond the annual set of joint exercises to venture into a strategic alliance.

The governments of the United States and India should deepen intelligence cooperation focused on the Indian Ocean. There is a need to overcome existing bottlenecks and develop an effective mechanism that can leverage the CENTRIX system loaned to the Indian Navy and used by the combined maritime forces within the Fifth Fleet, or the Asia-Pacific Intelligence Network that facilitates the exchange of finished intelligence products.

From a military technology standpoint, CENTRIXS is one of the systems that enable India and the United States to fight together as military allies in a combat zone since both sides would have access to a common operational picture, a single identical display which shows the position of enemy targets, friendly forces and other critical information which greatly enhances the situational awareness of military commanders.

India has managed to steer a straight course through the choppy geostrategic environment by concluding military logistics agreements with the US, France, Singapore and South Korea, and is looking forward to signing a similar agreement with Russia shortly and more to follow. The endeavor has been to increase cooperation in the field of maritime security, joint exercise, HADR and interoperability between navies. Though Indian warships can always extend their operational reach by using their fleet tankers, the availability of logistics support facilities with other countries will further enhance the ability of the Indian Navy to maintain appropriate 'presence' for extended periods in its areas of interest in the wider Indo-Pacific.

In addition to extending the range of Indian warships, such agreements provide for added operational flexibility of the Indian Navy's long-range maritime patrol (LRMP) aircraft. The Indian Navy has in its inventory the extremely potent Boeing P8I acquired in 2013. The aircraft carries a variety of state-of-the-art weapons and sensors that are capable of engaging both surface and subsurface targets.

With an operational range of 1200 nm (with four hours on station) and speed of 789 kmph, the aircraft forms India's maritime 'first line of defense'. The logistics agreements with partner countries thus facilitate the landing and refueling of these aircraft at reciprocal bases, as agreed, thereby extending their operational envelope by a substantial degree of India's military-diplomatic reach.

In conclusion, India's Grand Strategy will supplement the United States' Offshore Balancing or the Balance of Power approach to the whole of the Rim lands of Eurasia. Operational-military concepts such as Command of the Sea-Control and Sea-Denial will the central to India's maritime-military engagement in the Indo-Pacific as a part of its Grand Strategic approach. The military dimension of the Grand Strategy will be guided through force re-structuring and changing the necessary military command's matrix. Such an arrangement will include creating integrated theatre commands.

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