

U.S. Department of Defence Annual Report of 2020 on China's Military Power: Implications for India's Maritime Security

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Vivekananda
International
Foundation

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Published in 2020 by

Vivekananda International Foundation

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Cover image : Chinese Carrier Strike Group (Defenceconnect.com.au)

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U.S. Department of Defence Annual Report of 2020 on China's Military Power: Implications for India's Maritime Security

The US Department of Defence (DoD) Annual Report of 2020 on China Military Power released in September 2020 brings out China's meteoric military progress in recent years. The report states that China is already ahead of the United States in certain areas such as shipbuilding, land-based conventional ballistic and cruise missiles, and integrated air defence system. The report inter alia suggests that as of end 2019, China has the world's largest navy, the world's largest coast guard, the Indo-Pacific's largest air forces, the world's largest sub-strategic missile forces, one of the world's largest and most sophisticated surface-to-air missile forces—part of an Integrated Air Defence System architecture within 300 nm (556 km) of its coast, and the world's leading maritime militia. This paper aims to bring out the implications of China's increased military power revealed in the US DoD's Annual Report of 2020 on India's maritime military security.

Highlights of PLA Navy (PLAN) Modernisation and Growth¹

Since it embarked on a path of modernizing more than 25 years since early 1990s, the PLAN has become a formidable force in China's near-seas region, and is conducting more and more operations in distant waters, including Western Pacific, Indian Ocean, and waters around Europe.

China's modernization effort includes a wide array of platform and weapon acquisition programs, including anti-ship ballistic missiles (ASBMs), anti-ship cruise missiles (ASCMs), submarines, surface ships, aircraft, unmanned vehicles, and supporting C4ISR (command and control, communications, computers, intelligence, surveillance, and reconnaissance) systems. China's naval modernization effort also includes improvements in maintenance and logistics, doctrine, personnel quality, education and training, and exercises. China is now the world's largest shipbuilder² and has a robust and largest³ shipbuilding infrastructure, with over 20 yards involved in naval ship construction capable of building any type of surface warship and nuclear submarines, and dozens of commercial shipyards⁴.

1 Department of Defense, Annual Report to Congress, Military and Security Developments Involving the People's Republic of China, 21 Aug 2020 (available online at <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF>)

2 Ibid, p.143.

3 Andrew S. Erickson, Maritime Executive.Com, 01-18-2019; <https://www.maritime-executive.com/editorials/chinese-naval-shipbuilding-full-steam-ahead>

4 Office of Naval Intelligence, USN, China: Naval Construction Trends vis-à-vis U.S. Navy Shipbuilding Plans, 2020-2030, 6 February 2020, <https://fas.org/irp/agency/oni/plan-trends.pdf>

PLAN is engaged in a robust shipbuilding and modernization program that includes submarines, surface combatants, amphibious warfare ships, aircraft carriers, and auxiliary ships as well as developing and fielding advanced weapons, sensors, and command and control capabilities.⁵ China is also upgrading its older surface combatants with new weapons and other equipment⁶. Majority of its fleet comprises of new or modernised ships, aircraft, and weapons comparable to those of Western navies.⁷ China's technological advancement in naval design is now comparable with that of other modern navies⁸.

As per the US DoD report, PRC today has the largest navy in the world, with an overall battle force of approximately 350 ships and submarines including over 130 major surface combatants. By 2025, the number of battle force ships is likely to go up to 400 and upto 425 by 2030⁹. In comparison, the Indian Navy has about 41 major surface combatants as of early 2020¹⁰.

“Shipbuilding capacity of PRC is a huge advantage for them in a protracted conflict.” They can turn out ships faster than any other country and build up its force. Gen. David Berger, the Commandant of US Marine Corps, assessed recently “They have multiple shipyards building every class of ship, which is not really the case in the US

5 DoD Annual Report, 21 Aug 2020, n.1,p.vii.

6 US CRS Report RL33153, China Naval Modernization: Implications for U.S. Navy Capabilities— Background and Issues for Congress, July 30, 2020, <https://crsreports.congress.gov/product/pdf/RL/RL33153/237>, p.2.

7 Ibid, p.2.

8 Ibid, p.16.

9 Ibid. p.2

10 Approximation, based on data from Janes Fighting Ships, Janes World Navies and other open source information.

Navy. It gives them some extra capacity if they need to do a build-up or ramp-up the navy or rebuild the navy in a conflict where they lose a lot of ships.”¹¹

Indigenous Technical Capability: China domestically produces naval gas turbines and diesel engines, as well as most of its shipboard weapons and electronic systems, making it nearly self-sufficient in all shipbuilding needs.¹² China now does not rely on Russia or other countries anymore for any significant naval ship systems¹³.

China is rapidly building capabilities to increase its reach beyond its near-seas to support its interest overseas, to assert its status as a world power and play a larger role in the security mechanisms and furthering global goods. Some marquee developments indicating PLAN’s increasing global power projection capability are:

- Commissioning of its first domestically built aircraft carrier in 2019. The second domestically built carrier is likely to enter service by 2023.
- Launching of the first amphibious assault ship (Type 075 Yushen class LHA), a large deck amphibious warship with enhanced power projection capabilities.
- Commissioning of Type 55 Renhai Class cruiser.

11 Ryan Pickrell, “China is the World’s Biggest Shipbuilder”, Business Insider, 8 September 2020 <https://www.businessinsider.in/international/news/china-is-the-worlds-biggest-shipbuilder-and-its-ability-to-rapidly-produce-new-warships-would-be-a-huge-advantage-in-a-long-fight-with-the-us-experts-say/articleshow/78004896.cms>

12 DoD Annual Report, 21 Aug 2020, n.1, p.144.

13 US CRS Report RL33153, July 30, 2020, n.6, p.4.

- In the near future, capability of long-range precision strikes on land targets using land-attack cruise missiles from submarine and surface combatants is expected.
- PLA is also developing the capabilities and operational concepts to conduct offensive operations in the Pacific and Indian Oceans. PRC is looking at overseas logistics and basing infrastructure to project and sustain military power at greater distances. Apart from the base in Djibouti, the PRC is considering overseas military logistics facilities in Myanmar, Thailand, Singapore, Indonesia, Pakistan, Sri Lanka, United Arab Emirates, Kenya, Seychelles, Tanzania, Angola, and Tajikistan. Some of these will provide flexibility to support offensive operations in the Indian Ocean region.

Missions for PLA (Navy): Factors Affecting Chinese Naval Deployment beyond Western Pacific

This section examines the factors that would have a bearing on PLAN's ability to deploy forces for operations in the Indian Ocean Region.

The PRC's 2019 defence white paper brings out that PLAN is speeding up the transition of its tasks from "defence on the near seas" to "protection missions on the far seas." The modernisation of PLAN which includes induction of new classes of platforms and new capabilities for force projection beyond South China Sea and Western Pacific is indicative of this intent. However, analysts see PLAN as largely posturing to challenge the U.S. Navy in the blue-water ocean areas in the Western Pacific, while developing capabilities for addressing Taiwan situation militarily. Its other

objectives include achieving greater control over China's near-seas region¹⁴, particularly South China Sea (SCS); for enforcing its stated right to regulate foreign military activities in its claimed 200 nm EEZ; for defending China's commercial sea lines of communications (SLOCs), particularly those linking China to the Persian Gulf; and for asserting China's status as the leading regional power and a major world power¹⁵.

For deploying beyond Malacca straits to operationally engage with Indian Navy, PLA (Navy) would most likely find itself confined within the so called second island chain, for protecting its important national goals, in spite of its increased force levels. Factors/developments driving this conclusion include:-

- China has multiple maritime territorial disputes in the SCS and East China Sea (ECS) and has occupied certain disputed islands and shoals in the region. The disputes include those with Vietnam over **Paracel Islands**, with Vietnam, Philippines, Malaysia, and Brunei over **Spratly Islands**, with Taiwan and Philippines over **Scarborough Shoal** and with Japan over **Senkaku Islands**. China identifies assertion and defence of its maritime territorial claims in the SCS and ECS, strengthening its position and preserving a stronghold in the SCS, as important national goals¹⁶.

14 The term China's near-seas region refers to the Yellow Sea, East China Sea, and South China Sea—the waters enclosed by the so-called first island chain. The so-called second island chain encloses both these waters and the Philippine Sea that is situated between the Philippines and Guam.

15 US CRS Report RL33153, July 30, 2020, n.6, p.3.

16 Congressional Research Service - U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress, Updated 6 August 2020, <https://crsreports.congress.gov/42784>.

- **The US Factor:** U.S. does not see the maritime disputes in the SCS and ECS as being of little importance to the United States. The U.S. has treaties and security architecture for commitment of support with Japan, South Korea, Philippines and Taiwan. Also, Singapore, Vietnam, and Indonesia are emerging U.S. partner countries¹⁷. The US also appears to be averse to actions that China may take, like, controlling fishing, oil and gas operations in the SCS, enforcement of an air defence identification zone (ADIZ) over the SCS, maritime exclusion zone (i.e., a blockade) around Taiwan, projection of Chinese military presence into the Western Pacific and regional hegemony in the region.¹⁸ In addition the US is the staunch proponent of freedom of navigation (FON) which is being threatened by China's unilateral assertions of excessive maritime claims and its propensity to regulate the activities of foreign military forces operating within China's perceived EEZ.¹⁹ USN ships challenge excessive maritime claims by assertions operations over freedom of use of sea and airspace under international law. On November 19, 2019, Secretary of Defense Mark Esper reportedly stated that the United States had conducted "more freedom of navigation operations in the past year or so than we have in the past 20-plus years." An April 29, 2020, statement from the U.S. Navy 7th Fleet stated that United States will continue to demonstrate its resolve to uphold rights and freedoms to coastal states under UNCLOS. Observers conclude that US goals include²⁰ maintaining US-led security architecture in

17 Ibid.

18 Ibid.

19 Ibid.

20 Ibid.

the Western Pacific, and maintaining a regional balance of power favourable to US and its allies and partners. Statement of Secretary of State Michael Pompeo on March 1, 2019, “... any armed attack on Philippine forces, aircraft, or public vessels in the South China Sea will trigger mutual defence obligations under Article 4 of our Mutual Defense Treaty” and the fact that US Senate Armed Services Committee, in June 24, 2020 sought a budget of \$467.2 million in R&D for navy to stay ahead of Russia and China and recommended a Pacific Deterrence Initiative (PDI) with a budget of \$6.9 billion for increasing lethality and carrying out exercises in the Indo-Pacific region²¹ conveys a very strong statement of intent.

- The QUAD, with US, Japan, Australia and India at its core is also gaining prominence in light of increasing Chinese aggression and hegemony in the region and could culminate in a mutually supporting security architecture.
- **Military Outposts created by China in the Spratly Islands** equipped with advanced anti-ship, anti-aircraft missile systems, military jamming equipment, aviation facilities, port facilities, communications facilities, sensor emplacements providing airfields, berthing areas, and resupply facilities to China for a sustained military presence in the area would require a substantial force dedicated for their protection as also for the Military base at Djibouti which would be critical for logistics and re-supply support for its forces deployed for far seas operations.

21 Ibid.

- **Protection of Deployed Carrier:** The carrier task forces would primarily be deployed against intervening external forces, particularly the US Carriers. A substantial PLAN task force would be engaged with the carrier for its protection.
- **ISR and Targeting Capability in the IOR:** The existing capability of PLAN to build up sufficient ISR effort and undertake detection, identification, tracking and targeting of legitimate targets in the IOR may preclude effective deployment of forces in the IOR. Indian Navy has a credible Maritime Domain Awareness (MDA) capability in the IOR bolstered by net-centricity of its platforms and its fleet of P8I long range maritime patrol aircraft which would further make any Chinese incursion a difficult proposition.
- **Long Logistics/ Supply Chain Support:** Long logistics supply chain for sustaining forces beyond the near seas and securing them would be a major limitation for deploying forces.

The conflicting interests of China and US in the South China Sea (SCS) and East China Sea (ECS); the priority attached by China to seamlessly defend claimed sites in the region, and the accompanying requirement of deploying requisite military forces there will largely ensure that China engages and deploys its military capabilities and forces predominantly in that region and this will severely hamper its ability to deploy forces beyond these seas and into the Indian Ocean region.

Key Combat Capabilities highlighted in the US DoD Report having a Military Bearing on India in the Indian Ocean

Anti-Ship Ballistic Missiles (ASBMs)- The report highlights the deployment of *two major anti-ship ballistic missiles (ASBMs) capable of conventional strikes against ships at sea and, conventional and nuclear strikes against ground targets - the DF-21D and DF-26.* The DF-21D Medium Range Ballistic Missile with a reported range exceeding 1,500 km, is fitted with a manoeuvrable re-entry vehicle (MARV) warhead. The DF-26 IRBM, with max range of about 4,000 km is capable of both conventional and nuclear warheads and can conduct **precision strikes in the Western Pacific, the Indian Ocean, and the South China Sea from mainland China.**

As per Andrew S Erickson, a noted China expert of Naval War College, USA; Beijing could target vessels out to the First Island Chain with the DF-21D and out to the Second Island Chain in the Western Pacific as well as into the Indian Ocean with the DF-26.²² In April 2018, Michael Griffin, the U.S. Undersecretary of Defense for Research and Engineering admitted to the Senate Armed Services Committee that “We do not have defences against those systems²³.”

As per Chinese military literature search and tracking for the strikes will be provided by new radar satellites, airborne early warning and control (AEW&C) aircraft, and long-range over-the-horizon radar as well as less conventional means such as large numbers of fishing

22 Andrew Erickson, Breaking Down the Pentagons 2020 China Military Power Report, The National Interest, 02 Sep 20 (available online at <https://nationalinterest.org/feature/breaking-down-pentagons-2020-china-military-power-report-quest-pla-parity-168201>).

23 David Lague, Reuters Special Report, China Challenge, The Rocket Man, 25 Apr 19, <https://www.reuters.com/investigates/special-report/china-army-rockets/>

boats²⁴. It is believed that China would collate data from satellites, unmanned aerial vehicles (UAVs), active and passive radar, in addition to ships at sea, to provide targeting for ASBMs. Analysts however point out that there is still some doubt about whether China has mastered the know-how that would allow a “carrier killer” ballistic missile to detect, track and hit a moving target far from the Chinese coast²⁵. The US DoD Annual Report states that “in conjunction with reconnaissance satellites, the PLAN’s expanding network of sky wave and surface wave over-the-horizon (OTH) systems provide warning and targeting capabilities at extended distances from China to support long-range precision strikes, including employment of ASBMs”.²⁶ The report in another section casts doubts over this capability by stating that “Whether the PLA can collect accurate targeting information and pass it to launch platforms in time for successful strikes in sea areas beyond the first island chain is unclear.”²⁷ The report brings out that China is striving to improve reconnaissance, surveillance, command, control, and communications systems at the strategic, operational, and tactical levels to provide high-fidelity over-the-horizon information for targeting by ASCMs launched by surface and sub-surface launch platforms²⁸.

Some observers have brought out Chinese relative weaknesses and limitations in areas of personnel quality, training, operational experience, joint operations with other military services, and potential support from allies and partners.

24 Janes World Navies 2017.

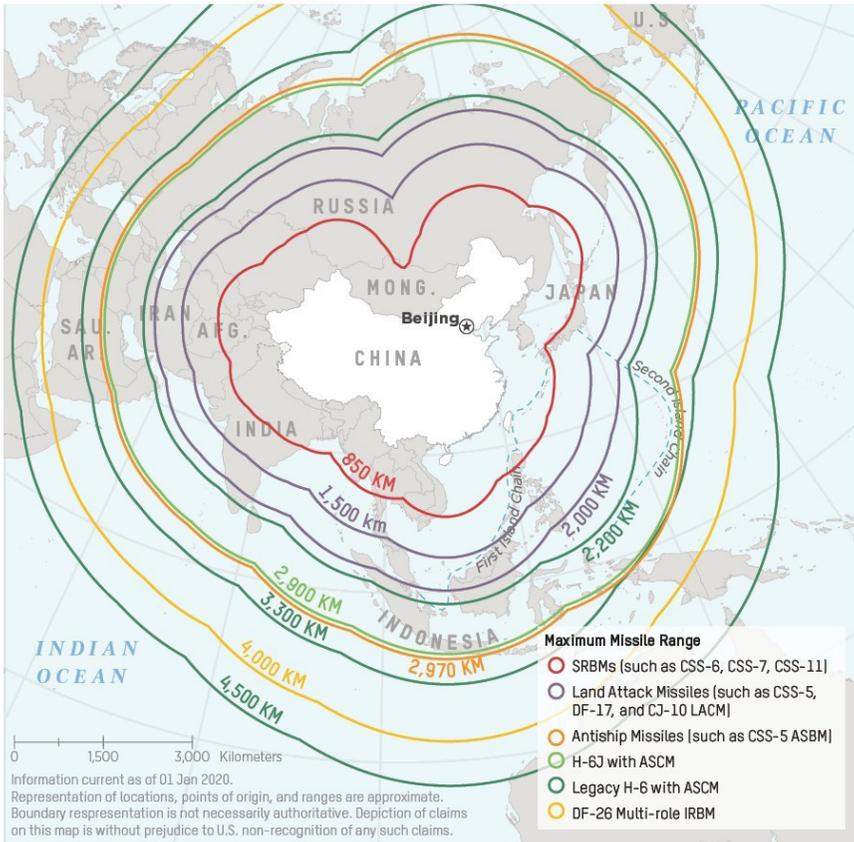
25 David Lague, Reuters Special Report, China Challenge, The Rocket Man, 25 Apr 19, n.23.

26 DoD Annual Report, 21 Aug 2020, n.1, p.59.

27 Ibid, p.73.

28 Ibid, p.46.

Conventional Strike Capabilities



(Diagram Source: US DoD Annual Report –
Military and Security Developments - China, 21 Aug 2020)

Anti-Ship Cruise Missiles (ASCMs): The report reveals that *China* today deploys a wide range of domestically produced advanced ASCMs. *YJ-83(180 km)* equips majority of *China's* ships as well as multiple aircraft. Several ships are also fitted with *YJ-62* ASCMs (advertised range of **280 km**, with suggestions that the domestic version has a range up to **400 km**). The *YJ-18(540km/ 290nm)* is a tube launched ASCM and likely replaced older *YJ-82* on *Song, Yuan, and Shang* class submarines. Its vertically launched variant is reportedly fitted on new *Luyang III* class destroyers and *Renhai* class cruisers. *China* has also

developed supersonic YJ-12 ASCM (450km).

Presently, the PLAN ships and submarines do not have **land attack capability** but in the near-term, PLAN will have long-range land-attack cruise missiles for precision strikes against land targets from its submarine and surface combatants. The report also states that the latest “*Renhai class cruisers will likely be able to launch ASBMs and LACMs once these weapons are available.*” This is a formidable capability that will have to be dealt with, out in the Indian Ocean.

The Chinese missiles today not only outrange Indian missiles but those of the US Navy also. Haddick, adviser to the U.S. Special Operations Command has stated that²⁹ “China’s anti-ship missile capability exceeds those of the United States in terms of range, speed and sensor performance.” The modern Chinese ASCMs claim ranges varying from 180km to 540km. India’s indigenous Brahmos supersonic anti ship cruise missile with a range of 290km comes closest in capability. The upgraded Brahmos with a range of 400 km range was successfully test fired on 30 Sep 20³⁰. DRDO test firings for the 800 km range Nirbhay sub-sonic cruise missile, before its formal induction into the army and the navy are also nearing completion shortly³¹. These developments will largely bridge the capability gap in the years to come. With Brahmos being the mainstay of Indian naval anti ship and land attack missile capability, its further range enhancement has become an urgent and indispensable requirement.

29 David Lague, Reuters Special Report, China Challenge, The Rocket Man, 25 Apr 19, n.23.

30 Financial Express, 01 Oct 20; <https://www.financialexpress.com/defence/brahmos-missile-launch-showcases-enhanced-operational-capabilities-pm-modi/2095606/>

31 Shishir Gupta, The Hindustan Times, 10 Oct 20; <https://www.hindustantimes.com/india-news/india-races-to-upgrade-its-armoury-fires-a-missile-every-4-days/story-UB5RQaMY4zVITIYbNFR8EL.html>

Having gained experience in developing and producing the missile since 1998³², the planned range enhancement needs to be expedited³³. The number of missiles carried on platforms would also need to be addressed. The PLA Navy's new Renhai class cruiser reportedly has a 115 cell Vertical Launch System (VLS) and the Type 52D class destroyers, which are the backbone of their blue water force have a 64 cell VLS having a mix of anti ship and anti air missiles. In the near future, despite PLA Navy's inability to deploy large number of ships beyond Malacca straits, the overbearing missile loads of their new destroyers/ cruisers pose a big challenge to India's naval forces in the IOR. This challenge can be overcome by robust, interminable surveillance efforts in our immediate areas of interest, an effective MDA and real-time information exchange between various echelons of the navy as well as with other cooperating navies. Meanwhile Long Range SAM (LRSAM) of 70 km range has been developed jointly by DRDO with Israel Aerospace Industries (IAI), and a number of operational missiles have been delivered³⁴. This would provide a significant boost to Indian Navy's area air defence capability.

Submarines- The US DoD revelations regarding submarines are that *most of PLAN submarines are now built to relatively modern Chinese and Russian designs capable of firing advanced anti-ship cruise missiles (ASCMs). The PLAN currently operates six nuclear-powered ballistic missile submarines (SSBNs), seven nuclear-powered attack submarines (SSNs), and 50 diesel-powered attack submarines (SSs). The Jin class SSBNs are capable of carrying 12 JL-2 SLBMs each. The next-generation Type 096 SSBN will likely begin construction in the 2020s and will reportedly carry a new type of SLBM. The PLAN could*

32 Brahmos Aerospace, <http://www.brahmos.com/content.php?id=1>

33 The Economic Times, 08 Jul 19; <https://economictimes.indiatimes.com/news/defence/upgraded-brahmos-with-500-km-range-ready-ceo-of-brahmos-aerospace/articleshow/70117273.cms>

34 MOD Annual Report 2018-2019.

have up to eight SSBNs by 2030. By the mid-2020s, China will likely build the Type 093B guided-missile nuclear attack submarine, the new Shang class variant which will enhance the PLAN's anti-surface warfare capability and could provide a clandestine land-attack option if equipped with land-attack cruise missiles (LACMs). PLAN however, continues to lack a robust deep-water anti-submarine warfare (ASW) capability.

The PLAN is replacing older units with more capable units on a near one-to-one basis. Since 2006, eight nuclear submarines have achieved operational capability, an average of one every 15 months³⁵. The construction of diesel-powered submarines has consistently averaged 2.5 vessels annually.

The Chinese SSNs have started foraying into the IOR since 2014³⁶ and could pose a serious challenge to Indian forces in the Indian Ocean region. The SSNs could also get deployed with the Chinese Carrier tasks forces in escort role when the latter become operational. More SSNs are on the anvil.

Meanwhile in the last fifteen years, the Indian Navy³⁷ has inducted two Project 75 submarines in 2017 and 2019. Presently, there are 15 conventional submarines and two Nuclear Submarines in the Indian Navy. Majority of the conventional submarines are over 25 years old. However, the 30 years long term submarine Building Plan includes indigenous construction of 24 conventional submarines by 2030. The programme for induction in 12th plan and LTIPP 2012-

35 US CRS Report RL33153, July 30, 2020, n.6, p.10.

36 Rajat Pandit, Times of India, 13 May 2017, <https://timesofindia.indiatimes.com/india/india-closely-tracking-chinese-submarine-which-is-likely-to-head-for-karachi-after-colombo-snub/articleshow/58649191.cms>

37 Standing Committee on Defence (SCOD) report of Mar 2020 to Lok Sabha for Demand for Grants 2020-21.

27 includes four more P 75 by June 2022 and six P-75 (I) submarines are to be constructed under the Strategic Partnership model between years 2027-32. In Phase II twelve more submarines of an indigenous design are to be constructed in India in with experience gained and technology absorbed. India's second SSBN Arighat was launched in November 2017 and two more units are planned to be launched in 2020³⁸. About sixty per cent of their components are going to be indigenous. DRDO has also commenced its K-6 SLBM project (range 6,000 km). Plans also exist for building six indigenous SSNs³⁹. Cabinet Committee on Security (CCS) had approved the proposal on February 15 and the Chief of Naval Staff on 1 December 2017 informed the media that "the process has started". India also needs to expedite its indigenous capability for submarine launched anti ship and land attack cruise missiles and torpedoes, to provide a comprehensive deterrence and area denial capability in the Indian Ocean region.

Aircraft Carriers- The US DoD report informs that *in December 2019, PRC commissioned its second aircraft carrier (first domestically built), Shandong. The carrier uses a ski- jump takeoff for its aircraft. China is working on its second domestically built aircraft carrier in 2019, which will be larger and fitted with a catapult launch system to support additional fighter aircraft, fixed-wing early-warning aircraft, and more rapid flight operations and thus extend the reach and effectiveness of its carrier based strike aircraft. The carrier is projected to be operational by 2024, with additional carriers to follow.*

Since Taiwan is within range of land-based Chinese aircrafts and

38 Sandeep Unnithan, India Today, 10 Dec 17, <https://www.indiatoday.in/magazine/the-big-story/story/20171218-india-ballistic-missile-submarine-k-6-submarine-launched-drdo-1102085-2017-12-10>

39 Ibid.

missiles, it is believed that China is acquiring carriers primarily for other kinds of operations, and to demonstrate China's status as a leading regional and world power. Chinese aircraft carriers could be used in scenarios that do not involve opposing U.S. forces as they do not possess comparable power projection capabilities. These carriers could also be used for humanitarian aid and disaster relief (HADR) operations, maritime security operations (such as antipiracy operations), and non combatant evacuation operations (NEOs).⁴⁰ It is speculated that China may eventually field a force of four to six aircraft carriers.⁴¹ The first four (Type 001 and Type 002) would have conventional propulsion while the Type 003 is likely to have nuclear propulsion and weigh 90,000 tons or more.⁴²

With one aircraft carrier the Indian Navy is presently capable of exercising limited sea control in Western or Eastern IOR. It can undertake operations for providing protection to India's island territories and provide deterrence for any threat from PLAN warships/ task forces operating in IOR beyond their air cover. India's first indigenous carrier IAC1 is expected to get commissioned in 2023⁴³ and a third carrier (IAC 2) is also envisaged. Feasibility of fitment of Electro Magnetic Aircraft Launching System (EMALS) on the IAC2 has been discussed with the U.S.⁴⁴. With two carriers, Indian Navy will be able to effectively field only one aircraft carrier for operations. With a force level of three it would be feasible to

40 US CRS Report RL33153, July 30, 2020, n.6, p.15.

41 Ibid, p.11.

42 Ibid, p.15.

43 CAG Report no 17 of 2016- Performance Audit on Construction of Indigenous Aircraft Carrier, (available at https://cag.gov.in/webroot/uploads/download_audit_report/2016/Union_Defence_Services_Navy_and_Coast_Guard_Report_No_17_of_2016.pdf)

44 Janes World Navies 2017.

field simultaneously one each aircraft carrier in the Western and Eastern Indian Ocean. Plans are also afoot for induction of Multi-Role Carrier Borne Fighters (MRCBF). Indian Navy is planning to induct 57 Multi-Role Carrier Borne Fighters (MRCBF) for its aircraft carriers⁴⁵.

The first two PLAN carriers may be comparable with Indian carriers. As PLAN gains experience and inducts more Carriers, its capability would be on an upward trajectory with very capable fifth generation fighters planned for future carriers. The next generation of carriers will have greater endurance and a catapult launch system capable of launching various special mission fixed-wing aircraft for early warning, EW, and anti submarine warfare (ASW). These improvements will make them a potent force beyond China's near seas.

Surface Combatants- The highlights of PLAN surface force accretions in the US DoD report are:-

- *The PLAN is engaged in a robust shipbuilding program for surface combatants, producing new guided-missile cruisers, guided-missile destroyers and corvettes which expand PLAN's operations beyond the range of the PLA's shore-based air defence systems.*
- *In December 2019, China launched the sixth Renhai class cruiser (Type 055) displacing between 10,000 and 13,000 tons and equipped with 128 cell VLS for, a mix of long-range ASCMs, surface-to-air missiles (SAMs), and anti-submarine weapons. The Renhai CG will be China's premier carrier*

45 Shiv Aroor, Livefist Defence.com, 25 Jan 17, <https://www.livefistdefence.com/2017/01/its-official-indian-navy-wants-57-carrier-borne-fighters.html>.

escort for blue-water operations⁴⁶.

- *By end of 2019, PRC had launched 23 Luyang III DDGs....with 13 of them operational with the PLAN. These ships have a 64-cell multipurpose vertical launch system capable of launching cruise missiles, SAMs, and anti-submarine missiles.*
- *In 2019, the PLAN commissioned its 30th Jiangkai II class guided-missile frigate (FFG). The PLAN is augmenting its littoral warfare capabilities, with high-rate production of the Jiangdao class light frigates/ corvettes. By the end 2019, more than 42 Jiangdao class had entered service out of an expected production run of at least 70 ships. The latest Jiangdao class are ASW variants with towed-array sonar.*
- *The PRC has also built 60 Houbei class wave-piercing catamaran guided-missile patrol boats (Type 022) for operations in China's "near seas."*
- *The PLAN's frigates and modernized older combatants, carry variants of the YJ-83 ASCM (180 km), while newer surface combatants Luyang II destroyers are fitted with the YJ-62 (400 km). The Luyang III and Renhai class will be fitted with the YJ-18A (540 km). A few modernized destroyers are retrofitted with the supersonic YJ-12A ASCM (450 km).*
- ***PLAN Amphibious Warfare Ships.*** *In 2019, China launched its first Yushen class (Type 075) LHA and a second Yushen class LHA is under construction. In addition, PLAN has seven large Yuzhao class amphibious transport docks (LPDs) (Type 071), with an eighth ship expected to be commissioned in 2020.*

46 Janes World Navies 2017 and Military Balance 2020

These are large-deck amphibious ships capable of carrying a large number of landing craft, troops, armoured vehicles, and helicopters that will provide PLAN with an all-aspect expeditionary capability for long-distance deployments.

- **Auxiliary Ships.** *The PLAN continues to build a large number of seagoing auxiliary and support ships, including intelligence collection ships (AGIs), ocean surveillance ships (AGOSs), fleet replenishment oilers (AORs), hospital ships, submarine salvage and rescue ships, and various other specialized units.*

The new generation destroyers and frigates of the PLAN i.e. Type 055 Renhai class cruiser, Type 52 destroyers and Type 054 frigates are capable of being deployed beyond the regional waters of PRC and posing a challenge to Indian platforms. How many of these would be deployed outside the PRC's near-sea region in the event of a conflict, would largely depend on the military situation prevailing in the SCS/ ECS region and PRC's threat perception vis-à-vis US naval forces and her allies deployed in the region. Far sea operations would also be hindered by requisite ISR, situational awareness, air cover and the long logistics and supply chain for undertaking operations.

PLAN's larger amphibious ships such as the Type 071 and Type 075 would be of value for conducting amphibious landings in Taiwan-related conflict scenarios. Some observers believe that China is building such ships as much for their value in conducting other operations like asserting and defending China's claims in the South and East China Seas, HADR operations, antipiracy operations, and non-combatant evacuation operations (NEOs)⁴⁷.

47 US CRS Report RL33153, July 30, 2020, n.6, p.26.

Indian Navy's Maritime Capability Perspective Plan (MCP) 2012-27 envisages a 198 warship navy by 2027⁴⁸. About 40 ships and submarines are under construction at various yards⁴⁹. Various surface ship building projects are as under:-

- 4 Visakhapatnam Class (P15B) Destroyers are under construction.
- 3 P-17A Class Frigates will be constructed in Mazagaon Dockyards Ltd. and 3 in GRSE. Construction of third P 17A commenced on 11 Sep 20⁵⁰.
- Two Project 11356 frigates are under construction at Yantar Shipyard in Kaliningrad and are due to be delivered in 2024. Two more frigates will be assembled at Goa shipyard with technical support from Russia's United Shipbuilding Corporation (USC)⁵¹.
- 7-10 Next Generation Corvettes are planned to be acquired.
- 16 ASW Shallow Water Craft are planned for coastal ASW role.

48 Janes World Navies 2017

49 The Economic Times, 08 Jul 19; <https://economictimes.indiatimes.com/news/defence/upgraded-brahmos-with-500-km-range-ready-ceo-of-brahmos-aerospace/articleshow/70117273.cms>

50 Naval Technology, 11 Sep 20, <https://www.naval-technology.com/news/construction-begins-on-indian-navys-third-p17a-class-stealth-frigate/>

51 Franz Stephan Gady, The Diplomat, 07 Feb 2020, <https://thediplomat.com/2020/02/russia-to-deliver-2-guided-missile-frigates-to-india-by-2024/>

- Licenced indigenous production in collaboration with foreign OEM, of four LPDs⁵² capable of carrying 10 heavy helicopters, 900 troops, 20 tanks/ APCs, 40 heavy trucks is planned.

The Indian Navy presently has five blue water replenishment ships. Additionally, five Fleet Support Ships are planned to be built for the Indian Navy based on the strategic partnership model. HSL is the nominated shipyard for the activity⁵³. The induction of these Fleet Replenishment ships is critical for augmenting Indian Navy's blue water capabilities and the ability to rapidly respond to contingencies at long distances. These ships are required for sustaining the carrier task forces at sea and surface forces deployed in the Arabian Sea as well as in the Bay of Bengal/ Andaman Sea.

Though the numbers of Indian ships may not appear alarmingly low, what needs consideration is that China now indigenously manufactures all its warships and onboard systems including weapons and sensors. Whereas, the proportion of imported shipboard equipment including key technologies like weapons, sensors, propulsion etc is very high on Indian platforms. PLAN possesses the wherewithal to quickly replenish its ordnance and spares stocks as also make up loss of platforms in quick time. In the event of a protracted conflict, it would be a challenge for India to replenish critical weapons, spares and ammunition and timely supply would not be guaranteed. Further, assured and timely support from foreign military equipment suppliers may not be a given when the items are critically required.

52 SP's Naval Forces, Indian Navy seeks cancellation of \$2.8 B amphibious warfare ship (LPD) tender, 18 Sep 19, <http://www.spsnavalforces.com/news/?id=155>

53 The Hindu, 23 Jun 20, <https://www.thehindu.com/news/national/andhra-pradesh/hsl-ties-up-with-turkish-firm-to-build-fleet-support-ships/article31893924.ece>

Shipbuilding and Platform Induction: The table below compares the changes in Chinese and Indian fleet levels between the years 2005 and 2019 and highlights the asymmetry in the capabilities of the two navies purely in terms of ship numbers and not considering any other factors that impact operational deployment or mission effectiveness. The Indian Navy's Maritime Capability Perspective Plan approved by the Defence Acquisition Committee (DAC) in 2012 envisages a fleet of 198 ships and submarines by 2027.⁵⁴ Under the circumstances of a meteoric rise of China's naval power and its increasingly aggressive and hegemonistic actions since early 2020, it becomes imperative for India to plan a further augmentation of its maritime forces to further strengthen its upper hand over Chinese maritime forces in the IOR.

Ship Types	PLA NAVY			INDIAN NAVY		
	2005	2019	Change since 2005	2005	2019	Change since 2005
Ballistic missile submarines	1	4	+3	-	1	+1
Nuclear-powered attack submarines	6	6	0	-	1	+1
Diesel attack submarines	51	50	-1	16	14	-2
Aircraft carriers	0	1	+1	1	1	-
Destroyers	21	33	+12	8	11	+3
Frigates	43	54	+11	9	13	+4
Corvettes	0	42	+42	8	11	+3
Missile-armed coastal patrol craft	51	86	+35	13	8	
Amphibious ships: LSTs and LPDs	20	37	+17	2	6	
Amphibious ships: LSMs	23	22	-1	6	3	-3
Total PLAN ships (does not include other types, such as auxiliary and support ships)	216	335	+119	63	69	+7
Total Indian Navy ships (does not include other types, such as auxiliary and support ships)	63	69	+7			

Table: Changes in Chinese and Indian fleet levels between the years 2005 and 2019⁵⁵

54 Standing Committee on Defence (SCOD) report of 22 Dec 14 to Lok Sabha for Demand for Grants 2014-15,p.3.

55 Approximate compilation based on US CRS Report RL33153, China Naval Modernization: Implications for U.S. Navy Capabilities- Background and Issues for Congress, July 30, 2020, <https://crsreports.congress.gov/product/pdf/RL/RL33153/237>, p.28.; Janes Fighting Ships; Janes World Navies and Open Source Information

Space Capabilities: Regarding the PRC space capabilities, the DOD report states that *PRC expects space to play an important role in future conflicts by enabling long-range precision strikes and in denying other militaries the use of overhead C4ISR systems. The Department of the PLA Strategic Support Force (SSF), a theatre command-level organization operates at least eight bases, including those that launch and operate satellites vital to China's overhead C4ISR architecture. The SSF also runs tracking, telemetry, and command stations in Namibia, Pakistan, and Argentina. PLA today owns and operates approximately half of China's more than 120 reconnaissance and remote sensing satellites, most of which could support situational awareness of regional rivals, while monitoring, tracking, and targeting an adversary's forces*⁵⁶. *China seeks to enhance C2 in joint operations and establish a real-time surveillance, reconnaissance, and warning system. It is increasing the number and capabilities of its space systems, including various communications and intelligence satellites as well as the Beidou navigation satellite system*⁵⁷.

India needs to quickly augment its satellite based surveillance capability over the Indian Ocean region, feeding into its C4ISR architecture -real time information for detection, identification, tracking and targeting. This capability is most essential for deterring any inimical intentions of external forces in the region. The newly formed Defence Space Agency should be augmented with technical expertise with Indian Navy as the lead service in the agency. As of now the defence satellite GSAT-7, fabricated by ISRO for navy and launched in August 2013, allows high-density data transmission, including both audio and video. The satellite has a footprint of 3,500–4,000 kilometres over the Indian Ocean region and enables network-centric operations of all its operational assets at sea and on

56 DoD Annual Report, 21 Aug 2020, n.1, p.65.

57 Ibid, p.63.

land. Its replacement GSAT-7R satellite is expected to be launched by 2020⁵⁸. The Indian Navy also has a strong maritime reconnaissance and surveillance capability in the IOR owing to its fleet of eight P8I Poseidon long range maritime reconnaissance aircraft capable of anti-submarine warfare (ASW) and surface surveillance. Four more of these aircraft are being inducted through the US Foreign Military Sales(FMS) route commencing 2020 and ten more have been cleared for induction taking their numbers to 22 in the future.⁵⁹

PRC's Overseas Logistics and Basing Infrastructure- The report brings out PRC's endeavours to *establish more overseas logistics and basing infrastructure to allow PLA project and sustain military power at greater distances. Beyond the base at Djibouti, PRC is likely considering logistics facilities at Myanmar, Thailand, Singapore, Indonesia, Pakistan, Sri Lanka, United Arab Emirates, Kenya, Seychelles, Tanzania, Angola, and Tajikistan. The PRC has probably already made overtures to Namibia, Vanuatu, and the Solomon Islands. The focus is on areas along the SLOCs from China to the Strait of Hormuz, Africa, and the Pacific Islands.*

The expansionist display by China mandates that India engages more proactively with countries on the IOR rim especially the island nations in the Southern Indian Ocean. A whole of government approach is required to promote not only cooperation in maritime security with these countries but also ensuring that China's economic coercion or enticement does not translate into Chinese footholds in these countries in terms of dual use facilities. These would be

58 Times of India, "ISRO to build 2nd dedicated satellite for Navy", 21 Jul 19, <https://timesofindia.indiatimes.com/india/isro-to-build-2nd-dedicated-satellite-for-navy-to-interlink-warships-aircraft/articleshow/70310935.cms>

59 Franz Stephan Gady, The Diplomat, 01 Apr 20, <https://thediplomat.com/2020/04/indias-navy-to-begin-receiving-four-more-p-8i-neptune-maritime-patrol-aircraft-in-may/>

leveraged by China for undermining India's maritime security. Focus akin to the Act East Policy is required towards island nations in the Southern Indian Ocean and those countries where China's overseas facilities could pose a threat to India's maritime security.

Concluding Observations and Recommendations

The asymmetry in our military preparedness vis-à-vis the Chinese military power becomes more glaring due to the now-in-the-face actions by PLA directly threatening India's security. These capability gaps largely boil down to the following issues:

Heavy dependence of imported military equipment- According to the Stockholm International Peace Research Institute, India was the fourth-largest importer of defence goods and services in 2018. India is producing only 40-45 per cent of its arms requirements as of now leading to a heavy reliance on foreign defence equipment suppliers. Dependence on imports makes India vulnerable to technology denial and non availability of defence hardware during times of conflict even if the item is being license produced and is also the reason for ubiquitous deficiencies resulting from protracted process of acquiring equipment from foreign suppliers.

Inherent inefficiencies in the acquisition process and indigenisation initiatives have been a stumbling block to the modernisation and readiness of Indian armed forces. The Defence Acquisition Procedure (DAP)-2020 which came into effect from October 1, 2020 is stated to make this process more efficient while being aligned with the Government's vision of Atmanirbhar (Self-Reliant) Bharat, empowering Indian domestic industry through 'Make in India' initiative. The DAP 2020 among other things includes a new category of 'Buy (Global – Manufacture in India)' which

incorporates 'manufacture of entire/part of equipment through the Indian subsidiary. Offset guidelines have also been revised to improve their implementation. Other measures include banning of 101 Defence Equipment for import beyond a timeline, raising FDI Limit in the defence sector from 49% to 74% and separate budget of Rs 52,000 crore set aside for procurement from domestic vendors in the current financial year. MoD has also formulated a draft Defence Production and Export Promotion Policy 2020 (DPEPP 2020) to provide a thrust to defence production capabilities of the country for self-reliance and exports. Some other government initiatives include⁶⁰:-

- Setting up of Defence corridors in Uttar Pradesh and Tamil Nadu.
- Strategic Partnership (SP) Model to promote investments.
- MoD would designate 5,000 defence items to be indigenised by 2025. Most of these would then be produced by MSMEs.
- Innovations for Defence Excellence (iDEX) scheme.
- Corporatisation of Ordnance Factory Board (OFB).
- DRDO has identified 108 systems and subsystems for designing and development by the Indian Industry through development contracts on suitable Indian industry. DRDO will provide support for design, development and testing of these systems.

60 Major Gen BhupinderYadav (Retd), Defence Reforms and impact on Atmanirbharta, Defence ProAq, <https://defproac.com/?p=11591>

These measures largely amount to change in figures and percentages in the earlier unsuccessful process and there remains as hitherto a passivity in the approach wherein one has to wait for moves and actions by target parties to judge the effectiveness of the measures instituted. There is a need for more action-oriented policies driving specific objectives as per a timeline, involving direct action and investment by the government and execution by nominated agencies.

Gap in understanding and expertise in military matters between the service HQs and MOD has been overcome to a large extent with the institution of Chief of Defence Staff (CDS) as the head of a new vertical of ‘Department of Military Affairs (DMA)’ under the MOD. While this has brought military representation and its equal voice right up to the top echelon in the management of its affairs, it is imperative that DMA has an active say in the capital acquisition process to facilitate rational, sustained, timely and result oriented progress of the acquisition process for its successful culmination.

Government’s articulation of a national security strategy⁶¹ and a consequently derived military strategy would streamline the process of modernising and arming the armed forces in consonance with the mandates of the national security strategy. Absence of such an articulation only muddles and makes inefficient the acquisition and arming process. This would also help in rationalising the conflicting ‘developmental’ and ‘investment’ priorities vis-à-vis ‘defence acquisition’ and facilitate a systematic, gradual and sustainable equipping of the defence services rather than a rushed, reactive acquisition spree, which in any case does not yield requisite results.

61 Lt Gen Gautam Banerjee, Chp 11, 15 - ‘Management of India’s Military Prowess’, 2020, Vivekananda International Foundation

A mindset assuming that rise of China would be peaceful one without disrupting the geo political and security scenario in the region was to a large extent responsible for the inadequate importance accorded to military acquisitions and its modernisation requirements. A suitable national security strategy as mentioned above, could have precluded a situation where the forces in the face of imminent threat are looking at critical gear and warfighting equipment.

An inadequate shipbuilding capability/ military industrial complex is the prime reason for shortfall in the number of platforms and naval capability. The existing private Indian shipyards have largely failed in meeting naval shipbuilding requirements and a number of contracts are falling through leaving a void in the requisite force levels. Shipbuilding contracts with foreign shipyards are also not coming through for various contractual, procedural and political reasons, as seen in the case of Fleet Support Ships and MCMVs. Construction of frontline combat ships traditionally being undertaken by Defence PSUs; MDL, GRSE, GSL and HSL; as also CSL, have also seen long time-overruns in producing ships. India's inability to timely replenish any major losses of platforms and their organic warfighting equipment, particularly during a conflict, will leave a long term void in its maritime security. The recent initiatives for achieving indigenisation cannot address the issue of revitalising the shipbuilding capability which requires an action oriented policy with full government participation towards induction of advanced technologies and best practices in shipbuilding through leading foreign shipbuilders. This would require a huge infusion of capital, technology and infrastructure. Merger of the defence shipyards under a dedicated Government Owned Company Operated

(GOCO)⁶² model could be adopted for shipbuilding under which the government invests in sunk costs - induction of technology, infrastructure, machinery, manpower and other support systems which otherwise would dissuade the private sector from entering in shipbuilding. This would streamline and seamlessly integrate technical capabilities across the shipyards. The shipyard should have an organic, navy's design office/ component which can drive the consolidated shipbuilding requirements at the conceptual level and be a constant interface between emerging naval requirements and the shipbuilders.

India's prowess in development of missile systems has been displayed adequately in the recent past and a number of missiles have been developed and proved. The parallel development of naval version of weapon systems particularly the missile systems should be undertaken from the ab-initio stage to facilitate its early adoption by naval platforms. Complexity in siting and integration of a weapon system with the ships combat systems is a time consuming process. The system, if it can be replaced *en bloc* on board existing ships and be readily incorporated in the designs of future ships can facilitate rapid upgrade in the overall naval capability.

It needs no affirmation that counter action to the Chinese revisionist and hostile actions on our land borders can be best leveraged through a strong maritime deterrent not just in the form of numbers of naval platforms but a robust capacity to turnover platforms at a high rate.

62 Major Gen BhupinderYadav (Retd), Indigenous Defence Industrial Base, Defence ProAq, <https://defproac.com/?p=11012>

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