



CHINA'S NAVAL MODERNIZATION: IS CANADA AT PAR TO CONTRIBUTE IN THE INDO-PACIFIC?

Major Obaid Akram

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Major Obaid Akram

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AIM

1. Canada has identified security partnerships, with Indo-Pacific nations, as a major caveat of its Indo-Pacific strategy; therefore, this service paper aims to review China's naval modernization under President Xi Jinping to proffer some recommendations for Canada.

INTRODUCTION

2. China's rise, leading to great power competition, has reshaped the strategic outlook of the Indo-Pacific as a region. Since 2015, the development of offensive military capabilities and advanced technologies has followed Chinese economic and diplomatic coercion. The impact of this is well reflected in China's indifference towards UN laws vis-à-vis disputes in the South China Sea, and a series of actions by China to militarize the Indo-Pacific region. Through its Indo-Pacific Strategy, Canada has expressed its intent to work with partners against unilateral Chinese actions, aimed at changing the status quo in the region.¹ As a response to China's growing aggression and influence; Canada has agreed to step up as a reliable partner to:²

3.

- Promote security and stability across region and home.
- Increase its military engagement,
- Deploy additional military assets in the region to invest in border security as well as intelligence.

4. However, to achieve its objectives effectively, it is imperative to understand and evaluate the increasing threat in the region. China's naval modernization has been underway since 1990s but has become a mainstay of PLA modernization during past decade. China's Navy is the largest navy among East Asian Nations and by U.S. DOD estimates, it has surpassed U.S. navy in terms of numbers of battle force ships between 2015 and 2020.³ Battleship force of China is expected to grow to 435 ships by 2030, whereas U.S. naval fleet will stand at 290 battle force ship. This growing difference in trend line of numbers with China's wholesome modernization plan of PLAN to; assert control in South China Sea, defend its SLOCs, and project itself as a great military power has become a concern for many observers.

¹ Government of Canada, *Canada's Indo-Pacific Strategy* (Ottawa, ON: Government of Canada, 2022).

² Government of Canada, *Canada's Indo-Pacific Strategy* (Ottawa, ON: Government of Canada, 2022).

³ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

DISCUSSION/ ANALYSIS

Evolution of China's Maritime Strategy: An Overview

5. PLAN's maritime strategy transitioned from "near-coastal defense" (1943 – 1976),⁴ to "near-sea active defense" (1978 – 1992).⁵ This strategy, also known as "offshore defense", was followed by three administrations till 2015.⁶ In 2015, a Chinese Defense White Paper declared that China's maritime strategy would be a combination of "Offshore Defense" and "Open Seas Protection".⁷ This shift in maritime strategy led to the ongoing modernization effort of PLAN.

Offshore Defense Capability

6. China regards Offshore Defense as its capability to counter threats to its sovereignty in a national security perspective. For this purpose, China considers its near-seas or regional waters to include: parts of the South China Sea, East China Sea, and Taiwan, as inalienable parts of its territory.⁸ To achieve this, China is developing asymmetric naval capabilities as a countermeasure to U.S. (Allied) Naval superiority, which the Pentagon has dubbed China's A2/AD strategy (Anti-Access/ Area-Denial).⁹ These capabilities include; anti-ship missiles, submarines, and missile boats, which focus on exploiting comparative advantage against large surface ships such as aircraft carriers.¹⁰

Anti-Ship Missiles

7. China is in the process of fielding both ballistic and cruise missiles capable of targeting ships at longer ranges. DF-21D and DF-26 are road-mobile missiles with

⁴ R.K.S. Ghandi, "Mao Tse-Tung: His Military Writings and Philosophy," *Naval War College Review* 17, no. 7 (March 1965): 18–21.

⁵ Burilkov, "The Maritime Strategy of Regional Powers," 105–12.

⁶ Pieter W. G. Zhao and Sayed Mahdi Munadi, *The Role of Gwadar in China's Maritime Strategy: A Geostrategic Dialogue between Mahan and Mackinder*, Vol. 42Informa UK Limited, 2023), 489. doi:10.1080/01495933.2023.2219192.

⁷ The State Council Information Office of the People's Republic of China, "White Paper: China's Military Strategy," Ministry of National Defense of the People's Republic of China, May 2015, <http://eng.mod.gov.cn/Database/WhitePapers>.

⁸ Ministry of National Defense, "Defense Policy: China's Defensive National Defense Policy in the New Era," Ministry of National Defense of the People's Republic of China, accessed November 28, 2020, <http://eng.mod.gov.cn/defense-policy/index.htm>.

⁹ Pieter W. G. Zhao and Sayed Mahdi Munadi, *The Role of Gwadar in China's Maritime Strategy: A Geostrategic Dialogue between Mahan and Mackinder*, Vol. 42Informa UK Limited, 2023), 489. doi:10.1080/01495933.2023.2219192.

¹⁰ Wu, "Towards Naval Normalcy," 668–78; Office of the Secretary of Defense, "Military and Security Developments Involving the People's Republic of China," Annual Report to Congress, 2020, <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF>.

potential ranges of up to 1500km and 4000km, respectively.¹¹ The latter is also capable of conducting precision strikes and swapping nuclear warheads. It can engage land and anti-ship targets in the Western Pacific, IOR, and SCS. Hypersonic glide vehicles, being developed by China, will make ASBMs more difficult to intercept. Although, not at the center of attention like ASBMs, Chinese ASCMs have led to concern, among observers in U.S., due to their relatively long ranges. Concurrently, observers are also concerned by the development of YJ-18 launcher, which can be packaged inside a standard commercial shipping container and be deployed on a merchant ship, a capability that if implemented, could violate the law of naval warfare.¹² Such missiles in combination with broad-area maritime surveillance and targeting systems allow China to attack aircraft carriers and moving ships in the Western Pacific. Even U.S. Navy has not faced a threat of such accurate ASBMs so far, thus making it a game-changing weapon.¹³

Submarines

8. China's steady efforts to modernise its submarines have come a long way in recent years. Qualitatively, they might not be at par with Russia's newest boats but are far more capable than antiquated submarines held by China earlier. An August 2023 report by U.S. Naval War College argues that the propulsion, quieting, sensor and weapon capabilities of Type 095 SSGN and Type 096 SSBN, compare favourably to Russia's Akula I class SSN and Dolgorukiy class SSBN respectively. If this analysis is correct, the introduction of the Type 095 and Type 096 would have profound implications for U.S. (and allies) undersea security.¹⁴ A September 2023, U.S. Naval War College report, attributes these developments to the progress of China's naval industries which are supporting PLAN's modernization plan through robust R&D and upgrading of production infrastructure.¹⁵ The existing PLAN inventory comprising: six SSBNs, six SSNs, and 48 SS, is expected to grow to 65 units by 2025 and 80 units by 2035. Despite the ongoing retirement of older hulls, PLAN will achieve these numbers due to an expansion of submarine construction capacity.¹⁶ The U.S. DOD report states, PRC has constructed twelve nuclear submarines over past 15 years. Six JIN-class SSBNs out of these twelve, equipped with JL-2 SLBM (3900NM) or the JL-3 SLBM(5,400NM), are PLAN's first credible sea-based nuclear deterrent.¹⁷ Moreover, PLAN has also added to

¹¹ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*

¹² Raul (Pete) Pedrozo, "China's Container Missile Deployments Could Violate the Law of Naval Warfare," *International Law Studies* (U.S. Naval War College), vol. 97, 2021: 1160-1170.

¹³ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, (2023).

¹⁴ Christopher P. Carlson and Howard Wang, *A Brief Technical History of PLAN Nuclear Submarines* Nuclear Submarines, China Maritime Studies Institute (CMSI), U.S. Naval War College, August 2023, p. 1.

¹⁵ Sarah Kirchberger, *China's Submarine Industrial Base: State-Led Innovation with Chinese Characteristics* State-Led Innovation with Chinese Characteristics, China Maritime Studies Institute (CMSI), U.S. Naval War College, September 2023, p. 1.

¹⁶ Department of Defense, *Military and Security Developments Involving the People's Republic of China 2023*, Annual Report to Congress, released on October 19, 2023, 55.

¹⁷ *2023 DOD CMSD*, p. 55.

its inventory two SHANG-III (Type 093B)-class guided-missile nuclear attack submarines (SSGN) between May 2022 and January 2023, and could have three hulls of this by 2025. Observers assess that equipped with new LRBM, China's fleet of six Jin-class SSBNs could hit the continental U.S..

Missile Boats

Type 054 Frigate. Type 054 Frigate has been a major component of PLAN's fleet, among multiple indigenous frigates, since 2008. Reportedly, their manufacturing was stopped in 2109, but an August 2021 press report suggests that "China is reportedly building another batch of Type 054A frigates for the People's Liberation Army Navy (PLA Navy) after it had launched two new ships of this class over the past few months".¹⁸ Multiple press reports note that 32nd Type 54A ship has been launched, while subsequent production has shifted to a larger and improved version called Type 054B.¹⁹

Type 056 Corvette. Since 2013, China has also built – a new type of Corvette i.e. Jiangdao Class/ Type 056 – at an exponential rate of commissioning 8 ships per year. Thus, they have been the leading contributor to growth of PLAN's overall fleet. U.S. DOD states that China's navy "commissioned the 72nd JIANGDAO in February 2021, completing the production run. The PLAN subsequently transferred the early flight TYPE 056 variants, likely 22 ships total, to the China Coast Guard in 2021, probably due to the early models' lack of towed-array sonar. The remaining JIANGDAOs (056A) are equipped with a towed-array sonar and are, thus, capable of contributing to ASW operations."²⁰

Open Seas Protection

9. China's ability to ensure effective Offshore Defense is dependent on the security of its vital sea lines of communications (SLOC), in far-seas like the Indian Ocean. China is therefore outfitting its fleet with aircraft carriers and larger surface ships such as multi-purpose destroyers and cruisers.²¹

Aircraft Carriers

10. China has two aircraft carriers in service, both of which are capable of launching fixed-wing aircraft using a "ski ramp" at the ship's bow. China's third carrier Fujian is

¹⁸ Liu Xuanzun, "Type 054A Frigate Good Choice to Expand PLA Naval Fleet and Boost Combat Preparedness: Experts," *Global Times*, August 12, 2021

¹⁹ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

²⁰ 2023 DOD CMSD, p. 56.

²¹ Lim, "The Driving Forces behind China's Naval Modernization"; Minnie Chan, "China's Big Battleship Building Spree to Guard Its Aircraft Carriers," *South China Morning Post*, January 10, 2021, <https://www.scmp.com/news/china/military/article/3117064/chinas-big-battleship-building-spree-guard-its-aircraft>.

expected to enter service in 2024.²² The ship is conventionally powered, with 79,000 tons water displacement, and equipped with catapults to launch aircraft – thus providing a longer range and payload carrying capacity. Comparatively, U.S. Navy aircraft carriers are larger (about 100,000 tons full load displacement), nuclear-powered, and use catapults to launch aircraft. Reportedly, construction of China’s fourth carrier has commenced and the ship may be nuclear-powered.²³ Aircraft carriers are of little value to China in the near-sea or Taiwan conflict. Their likely purpose is power projection in scenarios not involving U.S. and allies, HADR, or NEO operations. Despite their vulnerability to U.S. naval and air force assets, they can draw essential resources from other necessary operations.

Carrier-Based Aircraft

11. J-15 or Flying Shark is China’s main carrier-based aircraft. As of now, it can operate from a ski ramp. The aircraft is being modified for catapult launch capability, to enhance its range/ payload capacity. PRC intends to develop a carrier-capable variant of the J-31 stealth fighter and AEW aircraft called KJ-600. The latter is expected to be similar to US E-2 Hawkeye AEW aircraft.²⁴

Multi-Purpose Destroyers and Cruisers

Type 055 Cruiser/ Large Destroyer. Two shipyards in China are building a new class of cruiser, called the Renhai-class or Type 055. The first Type 055 ship was reportedly commissioned into service in January 2020,²⁵ and the eighth was reportedly commissioned into service in March 2023.²⁶ A January 2022 press report stated that in addition to the first eight ships, at least two more were under construction.

Type 052 Destroyer. China has been commissioning multiple indigenous new classes of destroyers since 1990. Most recent of these include Luyang III (Type 052 Class).²⁷ Phased-array radars and vertical launch missile systems make it quite similar to U.S. Navy destroyers.²⁸ Reportedly, the destroyer has been upgraded to a new version

²² Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

²³ Gabriel Honrada, "China's Next Aircraft Carrier Likely to Be Nuclear," *Asia Times*, October 10, 2022.

²⁴ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

²⁵ Liu Xuanzun, "China's 2nd Type 055 Large Destroyer Enters Naval Service," *Global Times*, March 7, 2021.

²⁶ Curtis Lee, "China Now Has 8 Type 055 Destroyers In Active Service," *Naval News*, April 27, 2023.

²⁷ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

²⁸ Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress*, 2023).

with an extended-length helicopter flight deck and a new radar.²⁹ Twenty-eight Type-052 destroyers have been added to PLAN's fleet since May 2020.³⁰

Operations Away from Home Waters

12. PLAN is primarily employed in China's home waters, but has significantly increased its deployments across the global in recent years. A Nov 2019, U.S. DOD report quoted Admiral Philip Davidson stating that China's navy had conducted more global naval deployments in past 30 months than it had in the previous 30 years.³¹ China's naval base in Djibouti supports these distant naval operations. "In June 2022, a PRC official has also confirmed that PLA would have access to parts of Cambodia Ream Naval Base."³² Simultaneously, China is also engaged in security agreements with the Solomon Islands and Equatorial Guinea (country on Atlantic coast of Africa) for the establishment of naval bases to support its operations away from home waters.

CONCLUSION

13. China's naval modernization effort is defined along two clear lines of objectives in line with its maritime strategy. It aims to develop capabilities to ensure a strong offshore defense capability, secure its SLOCs, and in achieving both these objectives assert itself as a leading regional/ world power. A robust shipbuilding industry is engaged in materialising this strategy through the development of submarines, surface combatants, guided missile cruisers/ destroyers, frigates, and ASBM/ ASCM, at a robust rate. The synergised impact of these assets will enhance PLAN's air defense, anti-sip and anti-submarine capabilities.

14. A comparative analysis of PLAN's modernisation efforts with U.S. shows a bias of PRC's effort towards anti-access/area-denial (A2/AD) efforts compared to open seas protection. Consequently, the offshore defense principle attracts more attention, as it directly threatens freedom of navigation in SCS.³³ However, increasing operations of PLAN in global waters and continued efforts to seek ports/ naval bases on coastlines across different continents confirms China's design to project itself as a global power.

²⁹ "PLA's 4th Improved Type 052D Destroyer Makes Maiden Appearance in Maritime Exercise," Global Times, March 30, 2021

³⁰ Tayfun Ozberk, "China Launches Two More Type 052DL Destroyers In Dalian," Naval News, March 12, 2023.

³¹ David Vergun, "Freedom of Navigation in South China Sea Critical to Prosperity, Says Indo-Pacific Commander," DOD News, November 23, 2019.

³² *2023 DOD CMSD*, p. 154.

³³ Oriana Skylar Mastro, "China's Maritime Ambitions: Implications for U.S. Regional Interests" (House Committee on Foreign Affairs - Subcommittee on Asia, the Pacific, and non-Proliferation: The American Enterprise Institute, June 30, 2020), <https://www.aei.org/research-products/testimony/chinas-maritime-ambitions/>.

RECOMMENDATION

15. Countering China's naval modernization poses a complex challenge for Canada, requiring a multifaceted approach that encompasses diplomatic, economic, and military strategies.
 - a. Canada should actively engage in diplomatic efforts to address maritime security issues in the Asia-Pacific region through multilateral forums such as the United Nations, ASEAN, and the ASEAN Regional Forum. Canada can work with partner nations in East Asia to promote respect for international law, including the United Nations Convention on the Law of the Sea (UNCLOS), and advocate for the peaceful resolution of maritime disputes.
 - b. Simultaneously, Canada should strengthen its alliances and partnerships with countries in the Asia-Pacific region, particularly with key naval powers such as the United States, Japan, Australia, and South Korea. Enhanced military cooperation, joint exercises, and information sharing can help deter potential threats and promote regional stability. Perhaps, Canada should prioritise agreeing with one of the partner nations like Japan or the Philippines to use their port facilities for docking and maintenance of its naval platforms. While this will enhance RCAN's operability in scenarios of active conflict, it will also add to the credibility and reliability of Canada as a partner in the region.
 - c. Canada should also seek to benefit from its alliances through investment in its own naval capabilities to meet its policy objectives in the Indo-Pacific region and maintain its stature as a reliable partner. This could involve increasing defense spending to modernize and expand the Royal Canadian Navy's fleet of surface ships, submarines, and maritime patrol aircraft while building on active/ passive anti-missile capabilities.
 - d. Canada should also provide assistance and support to regional partners in the Asia-Pacific region to enhance their maritime capabilities and capacity for maritime domain awareness and maritime law enforcement. This could include training programs, equipment transfers, and joint exercises to strengthen regional security cooperation.
 - e. Given the importance of cybersecurity in modern naval operations, Canada should invest in cyber defense capabilities while developing its own offensive capabilities. Efficient cyber capability can be an efficient defense mechanism against China's growing missile capability.

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