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# AUKUS and Risks of Submarine Proliferation: A preliminary assessment

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## AUKUS AND RISKS OF SUBMARINE PROLIFERATION: A PRELIMINARY ASSESSMENT

### SUMMARY

This policy brief reviews nuclear submarine acquisitions in the Asia-Pacific region since AUKUS was first announced last September. It argues that the expansion of existing nuclear submarine forces (i.e. vertical proliferation) and potential entry of new operating navies preceded AUKUS and were mainly motivated by extant threat perceptions in the neighbourhood. AUKUS may serve as a contributing influence, not necessarily the cause, of this proliferation. Regional countries that cannot afford or are technically disinclined to acquire nuclear naval propulsion may continue to show interest in conventional submarines, or countervailing anti-submarine warfare capabilities. With or without AUKUS, submarine proliferation appears to become a norm in the region due to geopolitical uncertainties. Existing mechanisms to address the risks of submarine proliferation mainly concern mitigation. Unabated submarine proliferation behoves regional governments to more seriously consider the merits of preventive mechanisms to manage those risks.

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<sup>1</sup> Francois Murphy, "AUKUS submarine deal 'very tricky' for nuclear inspectors -IAEA chief," *Reuters*, 28 September 2021; see also Stephanie Cooke, "Interview: IAEA's Grossi on Aukus, Iran and COP26," *Energy Intelligence*, 8 October 2021.

<sup>2</sup> Tanya Ogilvie-White and John Gower, *A Deeper Dive into AUKUS: Risks and Benefits for the Asia-Pacific*, Asia-Pacific Leadership Network for

### ONE YEAR'S STATE OF PLAY

In the year since the Australia-United Kingdom-United States Partnership (AUKUS) was announced last September, several concerns regarding Australia's acquisition of nuclear-powered attack submarines (SSNs) under AUKUS auspices have been highlighted. Given that the current Nuclear Non-proliferation Treaty (NPT) does not prohibit the use of nuclear material for naval propulsion, some have expressed concern for nuclear proliferation.<sup>1</sup> AUKUS also raised the spectre of a looming arms race as a result of submarine proliferation and escalation dangers of submarine-launched cruise missiles (SLCMs).<sup>2</sup> The International Atomic Energy Agency (IAEA) Director General Rafael Grossi warned that the likelihood that other countries might see AUKUS as a precedent to pursue their own nuclear submarine programs "cannot be excluded."<sup>3</sup>

The AUKUS partners are currently undertaking an 18-month study period to determine the best way forward,

Nuclear Non-Proliferation and Disarmament (APLN) Special Report, October 2021, at: <https://www.apln.network/projects/aukus/a-deeper-dive-into-aukus-risks-and-benefits-for-the-asia-pacific>

<sup>3</sup> Julian Borger, "IAEA chief: Aukus could set precedent for pursuit of nuclear submarines," *The Guardian*, 20 October 2021.

with a report due on March 23, 2022.<sup>4</sup> Australia is to decide by early 2023 whether to buy its first boats “off the shelf” from either the UK or the United States, or possibly even a composite solution. The submarines are not expected to enter service until 2040, despite Australia’s desire to induct the boats as early as possible.<sup>5</sup> While the timeline appears long, there have already been noticeable efforts to advance the plan. In June 2022, the US Department of the Navy announced the appointment Rear Admiral David Goggins, the program executive officer for the SSN program, to lead the planning and stand-up of the US Navy’s implementation of the AUKUS plan.<sup>6</sup> Meanwhile, Royal Australian Navy (RAN) submariners are tipped to join UK crews to train on the Royal Navy *Astute*-class SSNs under AUKUS auspices, which already oversaw RAN personnel enrolled in UK and US specialised nuclear training courses.<sup>7</sup> As a potential stop-gap following Australia’s

retirement of its existing *Collins*-class boats, London has revealed potential plans to deploy British nuclear submarines to the Indo-Pacific.<sup>8</sup> In terms of infrastructure, a new submarine base would be built on Australia’s east coast to support the new SSNs, as well as those of the UK and US navies.<sup>9</sup>

As the AUKUS submarine plan advances, with the exception of China and Russia, some of the regional governments, especially those in Southeast Asia, have appeared to dial down their initial criticisms of AUKUS.<sup>10</sup> However, some concerns still remain. While not explicitly highlighting AUKUS, Indonesia’s working paper submitted to the NPT Review Conference in August flagged legitimate concerns from its perspective as an archipelagic country about those extant risks associated to not only proliferation, but also safety and environmental consequences of radioactive leakage.<sup>11</sup> Regional concerns

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<sup>4</sup> *Nuclear Deterrence and Missile Defense Forum: RADM Scott W. Pappano*, Mitchell Institute for Aerospace Studies, 24 August 2022, at: <https://mitchellaerospacepower.org/event/nuclear-deterrence-and-missile-defense-forum-radm-scott-w-pappano/>

<sup>5</sup> Henry Belot and Jane Norman, “Peter Dutton flags Australia sending weapons to Taiwan, acquiring nuclear submarines before 2040,” *ABC News*, 6 March 2022.

<sup>6</sup> Heather Mongilio, “Navy Attack Sub PEO Goggins to Lead American AUKUS Effort, Says SECNAV,” *USNI News*, 23 June 2022.

<sup>7</sup> *Australian submariners to join Royal Navy crews as UK and Australia deepen defence ties through AUKUS pact*, Ministry of Defence, United Kingdom, 31 August 2022; Ben Packham, “Aussie sailors training on nuke subs,” *The Australian*, 31 August 2022.

<sup>8</sup> Latika Bourke, “British subs could patrol Indo-Pacific while Australia procures its own fleet,” *The Sydney Morning Herald*, 1 September 2022.

<sup>9</sup> *Australia to build additional submarine base*, Ministry of Defence, Australian Government, 7 March 2022.

<sup>10</sup> Read for instance, Collin Koh, “Looking Beyond the Rhetoric: Reactions in Southeast Asia to AUKUS,” *Joint Policy Paper* – April 2022, Institut de Recherche Stratégique de l’Ecole Militaire (IRSEM), at: <https://www.irsem.fr/institut/actualites/joint-policy-paper-2022.html>

<sup>11</sup> *Nuclear naval propulsion: Working paper submitted by Indonesia to the 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, New York, 1-26 August 2022, NPT/CONF.2020/WP.67, 25 July 2022, at: <https://digitallibrary.un.org/record/3982634#record-files-collapse-header>; see also, Chris Barrett,

about submarine nuclear propulsion safety and environmental impact were amplified following the collision of the nuclear submarine *USS Connecticut* with an uncharted seamount in the South China Sea in early October 2021.<sup>12</sup> While Beijing and Moscow consistently kept up with their rhetoric against AUKUS,<sup>13</sup> some regional newcomers – the Solomon Islands and Timor-Leste – also recently joined the fray, although the latter’s concerns about AUKUS seems more connected to other geopolitical interests than genuine concerns about those risks per se. Timor-Leste president Jose Ramos-Horta raised the spectre of regional arms race amidst a still-unresolved dispute with Canberra over the Greater Sunrise offshore gas field.<sup>14</sup> Solomon Islands prime minister Manasseh Sogavare raised AUKUS as a counter against criticisms directed by Australia and the United States against a new security agreement with China that could purportedly presage a Chinese naval base in the Pacific island nation.<sup>15</sup>

## AUKUS ROLE IN PROLIFERATION DANGERS: OVERBLOWN?

Concerns about submarine proliferation and its contribution to regional arms racing are well-intentioned. However, attributing these dynamics to AUKUS invites further questions. The first question is to determine the type of proliferation involved: horizontal (i.e. the entry of newcomers) and vertical (expansion of arsenal by existing operators). The second is to ask whether AUKUS has directly caused proliferation, or may have contributed to pre-existing proliferation. It is important to note that major arms acquisition programmes such as submarine procurement take a considerable gestation time period over a span of years. It has only been a year since AUKUS, which means that any noticeable moves seen now are likely preliminary in nature, and could inconclusively point to any causal effect. What is clear, however, is that preceding AUKUS, certain regional powers have already been implementing their nuclear submarine programmes. China for instance began to expand its nuclear submarine development capacity

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“‘Very serious interest’: Indonesia wants AUKUS submarines monitored by UN watchdog,” *The Age*, 1 August 2022.

<sup>12</sup> Sam LaGrone, “Investigation Concludes USS Connecticut Grounded on Uncharted Seamount in South China Sea,” *USNI News*, 1 November 2021.

<sup>13</sup> See for instance: *Upholding the Treaty on the Non-Proliferation of Nuclear Weapons for World Peace and Development*: Remarks by H.E. Ambassador Fu Cong, Head of the Chinese Delegation and Director-General of the Department of Arms Control of the Ministry of Foreign Affairs of the People’s Republic of China, at the 10th Review Conference of the Parties to

the NPT, New York, 2 August 2022; “Australia getting nuclear subs to trigger arms race, warns Shoigu,” *TASS*, 16 August 2022.

<sup>14</sup> Amanda Hodge and Dian Septiari, “Gusmao stirs ‘regional arms race’ fears,” *The Australian*, 1 September 2022; Matthew Knott, “‘Don’t lecture us!’ East Timor president defends China, offshore gas drilling,” *Sydney Morning Herald*, 7 September 2022; Emma Connors, “East Timor plays the China card in Sunrise gas battle,” *Australian Financial Review*, 19 August 2022.

<sup>15</sup> *Full text of Parliamentary speech by Solomons Prime Minister Manasseh Sogavare*, Solomon Islands Government, 28 April 2022.

way before AUKUS.<sup>16</sup> Likewise, India has an active nuclear submarine programme, following the induction of the *Arihant*-class nuclear-powered ballistic missile submarine. This vertical proliferation precedes AUKUS.

Aspirants within and outside the region did not register their interest in nuclear submarines as a result of AUKUS – at best, AUKUS could have become one convenient justification for plans that they already had in the pipeline. Brazil, a non-nuclear weapon state with a working SSN program that precedes Australia's, has been invigorated by AUKUS, and held initial talks with the IAEA aimed at paving the ground for use of submarine nuclear propulsion. A second meeting is planned for October 2022.<sup>17</sup> Notwithstanding its criticism of the IAEA's "silence" to AUKUS,<sup>18</sup> Iran already openly stated its intention to acquire a nuclear submarine capability back in April 2020.<sup>19</sup> In November 2021, the Iranians unveiled plans to develop the new *Be'sat*-class of "heavy submarine",<sup>20</sup> potentially the precursor to an eventual SSN capability.

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<sup>16</sup> H I Sutton, "Chinese Increasing Nuclear Submarine Shipyard Capacity," *USNI News*, 12 October 2020.

<sup>17</sup> *IAEA Director General's Introductory Statement to the Board of Governors*, International Atomic Energy Agency, 12 September 2022, at: <https://www.iaea.org/newscenter/statements/iaea-director-generals-introductory-statement-to-the-board-of-governors-12-september-2022>

<sup>18</sup> "Iranian MP expresses surprise over IAEA silence over AUKUS," *Tehran Times*, 21 September 2021.

<sup>19</sup> "Commander: Iran Pursuing Plans to Build Submarines Equipped with N. Propulsion System," *Fars News*, 16 April 2020.

## NORTHEAST ASIA

In Northeast Asia – undoubtedly the key focal point of potential submarine proliferation and regional arms racing – AUKUS is not the reason behind aspirations for nuclear submarines. In particular, South Korea has long harboured the intention to acquire a SSN capability in response to North Korea – especially following Pyongyang's demonstration of a submarine-launched ballistic missile capability in recent years – not AUKUS – even if the latter strengthened Seoul's resolve to acquire such capability. It has made plausibly precursory steps in that direction, not least of all backstopped by considerable non-partisan public support for the so-called K-SSN programme.<sup>21</sup> Under the present Yoon Administration, the South Korean defense budget for 2023 has dropped the light aircraft carrier programme whereas submarines – including K-SSN – were prioritized.<sup>22</sup> Seoul's SSN ambitions remain hamstrung by political concerns of Washington, the Agreement for Peaceful Nuclear Cooperation with the United States, and lack of routes to acquire nuclear fuel.<sup>23</sup>

<sup>20</sup> "Iran to Make New Heavy Submarine: Navy Chief," *Tasnim News Agency*, 27 November 21.

<sup>21</sup> Daehan Lee, "Prospect: CVX and K-SSN in South Korea's New Administration," *Naval News*, 17 May 2022.

<sup>22</sup> *Ibid*; and Daehan Lee, "South Korea Drops Aircraft Carrier Ambitions, Doubles Down On Submarines," *Naval News*, 1 September 2022.

<sup>23</sup> Daehan Lee, "Prospect: CVX and K-SSN in South Korea's New Administration," *Naval News*, 17 May 2022.

Close by, Japan could be a potential aspirant of nuclear submarines. If South Korea eventually does acquire such capability, it is not presumptuous to assume that Japan would seriously consider it as well. However, Tokyo's current emphasis remains in more capable conventional submarines. The first *Taigei*-class submarine was commissioned in March 2022, featuring a larger displacement over the preceding *Soryu*-class, runs on lithium-ion batteries for prolonged underwater endurance and higher short-distance speeds. That said, given the evolving security environment, there are clear signs that Japan is also adapting its defence posture from being exclusively defensive-oriented to one that features a more offensive force projection capability. Notably, the new ballistic missile defence-optimised ships that are planned after the scrapping of the Aegis Ashore procurement, are likely to be equipped with domestically-developed long-range cruise missiles, believed to be based on the Type-12 shore-to-ship missile that would have its range extended to about 1,000 km.<sup>24</sup> This development is not the result of AUKUS either, even if the pact could add urgency to it, given the alliance framework Japan works within. It is also plausible that the gradual induction of long-range offensive weapons, such as the cruise missile and hypersonic weapons programme, may herald the possibility of Japan inducting nuclear submarines in the future.

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<sup>24</sup> "New Aegis system-equipped ships will likely carry long-range cruise missiles," *Yomiuri Shimbun*, 17 August 2022.

## SOUTHEAST ASIA

Elsewhere, Southeast Asia, which is geographically adjacent to Australia, has key flashpoints such as the South China Sea and Taiwan, where nuclear submarines would find potential action. Here, the situation of proliferation and arms racing is more nuanced. Unlike Northeast Asia, home to the region's key economic, military, and technological powers, Southeast Asia faces a long, chequered history of arms procurement processes, more often prioritising socioeconomic development over military build-up. The main impediment to any nuclear submarine ambition amongst regional countries – besides lack of requisite technologies and knowhow – is funding constraints. For decades, Southeast Asian countries have struggled to maintain a viable conventional defence capability, which only means nuclear naval propulsion and even armament would be too far a stretch to consider. But that of course does not preclude the continued quest for conventional submarines and countervailing anti-submarine warfare (ASW) capabilities. However, submarine proliferation in Southeast Asia reached its peak before AUKUS – with Vietnam having inducted its entire fleet of *Kilo*-class submarines, and Indonesia, Singapore and Thailand starting to implement their latest acquisition plans before September 2021. Myanmar received its first submarine, a second-hand *Kilo*, from India in 2020 and another

second-hand *Ming*-class boat from China in 2021. Naypyitaw's undersea quest is not plausibly linked to AUKUS. Finally, the Philippines' quest for submarines dated many years back and has largely been motivated by disputes in the South China Sea instead of AUKUS.

In any case, funding for Southeast Asian military modernisation efforts has generally run into the post-COVID fiscal challenge, with such exorbitantly costly programmes as submarines typically coming under public scrutiny and worst of all, relegated to being the sacrificial lambs to budgetary cutbacks. Notably, the Thai government found itself in a quandary over public criticism of its COVID-19 policy response and was then compelled to defer payment in 2022 for the second and third submarines contracted to Chinese shipbuilder China Shipbuilding & Offshore International Co. (CSOC).<sup>25</sup> At present, the Thai submarine programme is facing disputes with CSOC over the diesel propulsion to be installed on the boat, with negotiations last reported to be still underway in June 2022 and the decision deferred to the incoming new navy chief.<sup>26</sup>

The Philippine Navy was unable to proceed with plans to acquire at least two submarines due to COVID-19,<sup>27</sup> though

fiscal challenges apply generally to the entire Philippine military modernisation programme, not just the submarine plan.<sup>28</sup> While the submarine plan seems shelved for now, the Philippine Navy at least moved to acquire better anti-submarine warfare (ASW) capabilities – it managed to eke out a contract for a pair of new South Korean-built corvettes, and expressed interest to purchase more ASW helicopters.<sup>29</sup> Yet this quest for ASW capabilities, both complement and a stop-gap until the eventual induction of submarines, does not appear to be caused by AUKUS. Rather it is driven by a recognition of the general lack of fleet capabilities as well as the Chinese threat perceived in the South China Sea.

## NAVIGATING MURKY WATERS?

All in all, one year since AUKUS was first announced, one cannot conclusively determine whether the pact has indeed increased or reduced the risks of submarine proliferation and regional arms racing. Those attendant conditions for such phenomena were long in place, and AUKUS merely added to the evolving regional dynamics underpinning military build-up. While AUKUS may not have had any direct causal impact on submarine proliferation yet, it does become a convenient talking point for existing submarine operating navies to expand

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<sup>25</sup> Wassana Nanuam, "Fate of two subs in balance," *Bangkok Post*, 28 July 2021.

<sup>26</sup> "Thai Navy still in tough talks with Chinese firm over submarine engines," *The Nation Thailand*, 16 June 2022; "Navy chief to let successor decide on buying subs with Chinese engines," *The Nation Thailand*, 15 September 2022.

<sup>27</sup> Priam Nepomuceno, "PH would have inked submarine deal sans pandemic: Navy chief," *Philippine News Agency*, 7 June 2021.

<sup>28</sup> The current phase of the Armed Forces of the Philippines (AFP) modernization, Horizon 2, is assessed to not be able to complete by end of 2022 as planned. Frances Mangosing, "Military modernization program stalled again," *Philippine Daily Inquirer*, 12 August 2022.

<sup>29</sup> Priam Nepomuceno, "PH Navy eyes acquisition of more anti-sub helicopters," *Philippine News Agency*, 6 September 2022.



their fleets, or aspirants to justify establishing one. Those risks are also not uniformly spread across the region. Northeast Asia is more likely to witness the causal effects of AUKUS on submarine proliferation, both vertical (in the case of China) and horizontal (most likely South Korea).

Submarine proliferation is less likely in Southeast Asia, not least due to post-COVID fiscal constraints, and it does not involve nuclear naval propulsion. The impact of AUKUS could be observed in the realm of continued regional interest in conventional submarines and more affordable categories of ASW capabilities. But even for that, extant regional dynamics that precede AUKUS would constitute the key driver of these plans. At best, AUKUS is not a direct reason for such acquisitions but a contributor to the evolving security environment characterised by growing geopolitical uncertainties that motivate arming.

That said, submarine proliferation remains a real challenge that the region needs to face up to. Any arms control effort to rein in this dynamic would easily come to naught, as evidenced by the interwar history of successive naval arms control efforts. The high likelihood of arms control failure means that the onus is on **regional governments to exercise some unilateral restraint in their procurement choices**. The present strong geopolitical urges to push on with submarine programmes, remain considerable, and submarine proliferation is likely to become a norm (post-pandemic

fiscal speedbumps notwithstanding). For vertical proliferators like China, the imperative to build a modern, bluewater navy that could match the United States would override any thought of self-restraint. Just as Beijing has rejected US proposals for nuclear arms control talks due to the asymmetry between the size of their respective arsenals, it is likely to reject any proposals aimed at curtailing its submarine build-up.<sup>30</sup> For potential horizontal proliferators, costs would be a key impediment. In the case of South Korea, political assurances, such as US pledges of extended deterrence may help ambitions only to a certain extent.

In the absence of any viable arms control measures and assuming unabated submarine proliferation, it is critical to consider mechanisms that can mitigate against risks that emanate from undersea operations. Much of the existing regional initiatives concern mitigation of submarine emergencies, such as in the event of collisions. Bilateral and multilateral arrangements involving submarine rescue and emergency response training exercises have been carried out in the past two decades at least. Given the delicate geopolitical sensitivities in the region, however, preventive mechanisms such as water-space management and prevention of mutual interference measures that may require nation-states to divulge the whereabouts of their submarines would be challenging, if not impossible.

**Singapore's proposal for an underwater code on unplanned encounters at sea (UCUES) would be worth revisiting for**

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<sup>30</sup> "Asking China to participate in "trilateral arms control negotiation" infeasible: Chinese envoy," *Xinhua*, 13 October 2020.

more widespread adoption by regional submarine-operating navies.<sup>31</sup> If anything, it ought to be clear to all that the future trends of submarine proliferation will potentially outpace

meaningful steps undertaken so far in the area of prevention and mitigation of risks. It is time for the region to more seriously consider preventive measures to forestall such dangers.

## ABOUT THE AUTHOR

Dr. **Collin Koh** is Research Fellow at the Institute of Defence and Strategic Studies which is a constituent unit of the S. Rajaratnam School of International Studies, based in Nanyang Technological University, Singapore. He has research interests on naval affairs in the Indo-Pacific, focusing on Southeast Asia. Collin has published several op-eds, policy- and academic journal articles as well as chapters for edited volumes covering his research areas. He has also taught at Singapore Armed Forces professional military education and training courses. Besides research and teaching, Collin also contributes his perspectives to various local and international media outlets and participates in activities with geopolitical risks consultancies.

## ABOUT APLN

The **Asia-Pacific Leadership Network for Nuclear Non-proliferation and Disarmament (APLN)** is a Seoul-based organization and network of political, military, diplomatic leaders, and experts from across the Asia-Pacific region, working to address global security challenges, with a particular focus on reducing and eliminating nuclear weapons risks. The mission of APLN is to inform and stimulate debate, influence action, and propose policy recommendations designed to address regional security threats, with an emphasis on nuclear and other WMD (weapon of mass destruction) threats, and to do everything possible to achieve a world in which nuclear weapons and other WMDs are contained, diminished, and eventually eliminated.



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<sup>31</sup> *Address by the Republic of Singapore Navy, Chief of Navy, Rear-Admiral Lai Chung Han, at the 15th Asia Pacific Submarine Conference Opening Ceremony, Ministry of Defence of Singapore, 19*

May 2015, at:  
<https://www.mindef.gov.sg/web/portal/mindef/news-and-events/latest-releases/article-detail/2015/may/2015may19-speeches-00931/>