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ASIA-PACIFIC LEADERSHIP NETWORK
FOR NUCLEAR NON-PROLIFERATION AND DISARMAMENT

Tanya Ogilvie-White and John Gower

A DEEPER DIVE INTO AUKUS RISKS AND BENEFITS FOR THE ASIA-PACIFIC

October 2021



Special Report

A DEEPER DIVE INTO AUKUS RISKS AND BENEFITS FOR THE ASIA-PACIFIC

Tanya Ogilvie-White

Senior Research Adviser, APLN

John Gower

Retired Rear Admiral; former Assistant Chief of
Defence Staff, UK MoD

ABOUT THE AUTHORS

Dr Tanya Ogilvie-White is research adviser to the Asia-Pacific Leadership Network (APLN), Senior Fellow at the Strategic Defence Studies Centre, Australian National University and Adjunct Fellow at the Griffith Asia Institute, Griffith University. Previously, she was Research Director of the Centre for Nuclear Non-Proliferation and Disarmament, Senior Policy Analyst at the Australian Strategic Policy Institute, and Stanton Nuclear Security Fellow at the International Institute for Strategic Studies, London. She wrote her PhD thesis on the reasons why some states develop nuclear weapons while others forgo them. She is an authority on the nuclear non-proliferation regime and since moving to Canberra in 2012, has been researching nuclear and missile developments in the Asia-Pacific.

Rear Admiral John Gower, CB OBE, served, until his retirement in December 2014, as Assistant Chief of Defence Staff (Nuclear & Chemical, Biological) in the UK Ministry of Defence (MoD). Previously, he had spent nearly half his 36-year military career at sea, culminating in the sequential command of two globally deployed submarines. He spent 17 years ashore in the MoD increasingly specialising in UK nuclear weapon and counter-CBRN policy and led the MoD UK contribution to the international activity between 2011 & 2014 to counter the threat of Syria's chemical weapons culminating in their successful removal and destruction. With very close ties to his US and French counterparts, he represented the UK in senior relevant NATO committees.



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The Asia-Pacific Leadership Network for Nuclear Non-Proliferation and Disarmament (APLN) is a network of political, military, and diplomatic leaders from countries across the Asia-Pacific tackling security and defence challenges with a particular focus on addressing and eliminating nuclear weapon risks.

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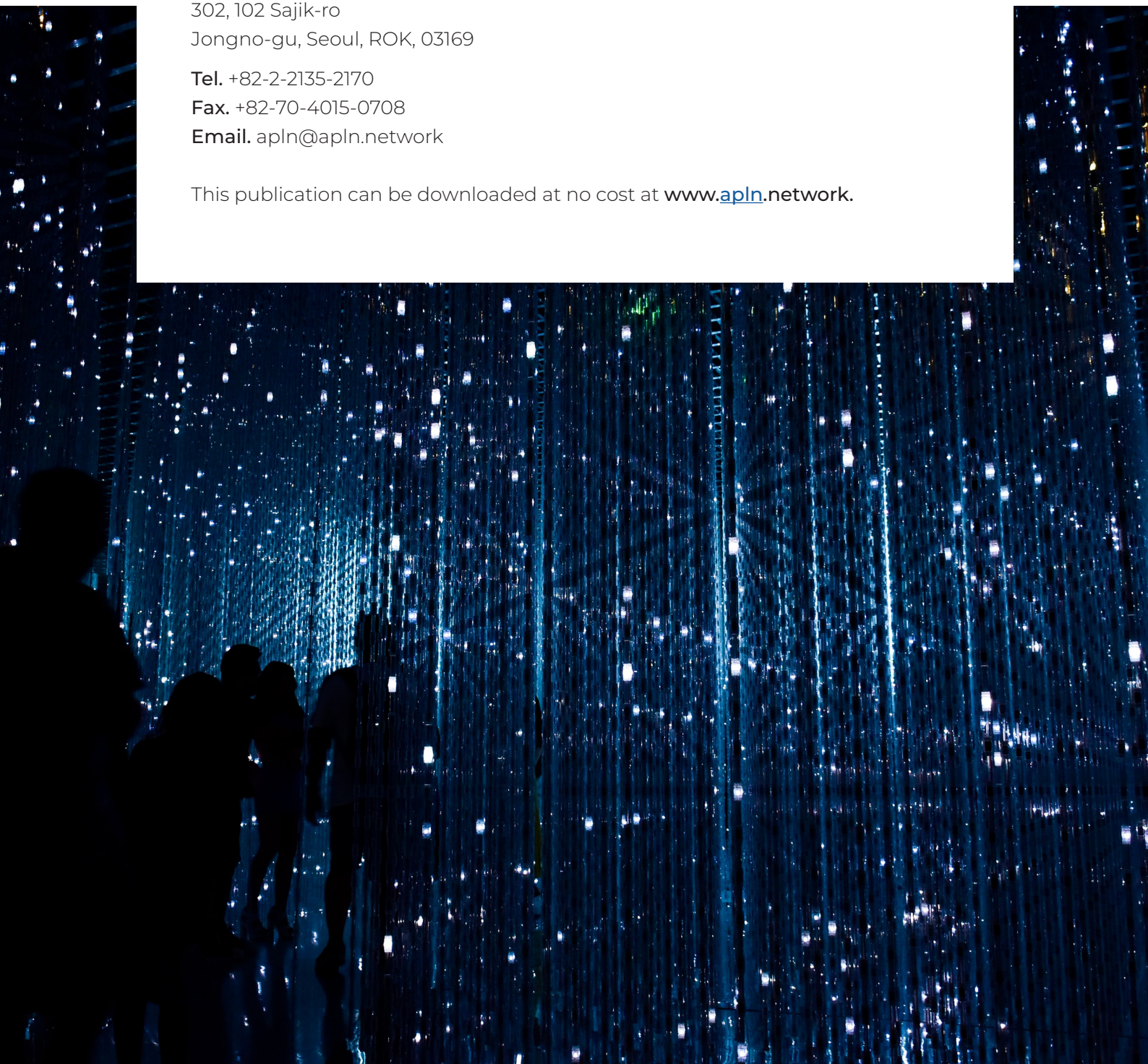
Asia-Pacific Leadership Network
APLN Secretariat
302, 102 Sajik-ro
Jongno-gu, Seoul, ROK, 03169

Tel. +82-2-2135-2170

Fax. +82-70-4015-0708

Email. apln@apln.network

This publication can be downloaded at no cost at www.apln.network.



GLOSSARY OF TERMS

Laser Enrichment	Laser enrichment technology (the separation of isotopes by laser excitation) was developed in Australia in the 1990s. Research on the process is currently underway in Australia, the US, Russia, India and China (at one stage it also took place in South Korea). According to nuclear physicists, laser enrichment might provide a hard-to-detect pathway to nuclear weapons production.
Lifetime Core	A lifetime reactor core contains the fissile material to power a nuclear submarine without the need for refuelling. In Australia's case, it is envisaged that the reactors used in its nuclear-powered submarines would be supplied already fuelled by the UK or US, and at the end of the submarine's life (around 30 years) the submarine with its reactor would be returned to the supplier.
MTCR	The Missile Technology Control Regime was created to curb the spread of missiles and unmanned aerial vehicles (UAVs) that could potentially be used to deliver nuclear weapons – specifically systems with a range of at least 300 km that could carry a payload of at least 500 kg. It establishes a strong presumption of denial (rather than a legal prohibition) on transfers of these systems.
NPDI	The Non-Proliferation and Disarmament Initiative is a coalition of 12 states, which was launched at the UN First Committee in 2010 to “advance [NPT] nuclear disarmament and non-proliferation agendas as mutually reinforcing processes.” Its members are Australia, Canada, Chile, Germany, Japan, Mexico, the Netherlands, Nigeria, the Philippines, Poland, Turkey, and the United Arab Emirates.

NPT	The Treaty on the Non-Proliferation of Nuclear Weapons (1968) is an international treaty whose objective is to prevent the spread of nuclear weapons and nuclear weapons technology, promote cooperation in the peaceful uses of nuclear energy, and further the goal of achieving nuclear disarmament. Implementation of the treaty is reviewed every five years at Review Conferences (RevCons) held at the UN in New York. The 2020 NPT RevCon was delayed by the global pandemic (and is due to be held in January 2022).
NPT “Loophole”	The NPT does not prohibit NNWS from building or operating nuclear-powered vessels. However, for practical reasons, the IAEA cannot safeguard naval reactors, and as a result permits NNWS to withdraw nuclear material from safeguards for use in “non-proscribed military activity,” such as fuelling nuclear-powered submarines. This is considered by many to be a loophole because it could potentially allow a NNWS to divert fissile material into developing nuclear weapons. No state has yet tested this loophole – if the AUKUS partners follow through on Australia’s SSN programme, Australia could be the first.
NWFZ	A nuclear-weapon-free zone is a specified region in which countries commit not to manufacture, acquire, test, or possess nuclear weapons. Five zones exist today, with four of them spanning the entire Southern Hemisphere. The Asia-Pacific region is home to the South Pacific Nuclear-Free Zone (the 1985 Treaty of Rarotonga), and the Southeast Asia Nuclear-Weapon-Free Zone (the 1995 Treaty of Bangkok). Australia is a state party to the Rarotonga Treaty.
NWS & NNWS	States parties to the NPT are classified as nuclear weapon states (NWS) and non-nuclear weapon states. Under the non-proliferation pillar of the Treaty, the five NWS (China, France, Russia, the UK and US) commit to not transfer nuclear weapons or related technology to the NNWS, while the NNWS (Australia and all other states parties) agree to forgo developing or acquiring nuclear weapons.

P5	The P5 are the permanent members of the UN Security Council: China, France, Russia, the UK and US. Within the NPT, they are referred to as nuclear-weapon states (NWS). They meet regularly between NPT Review Conferences in a forum called the P5 process, in which they address their unique responsibilities under the treaty. (France, the UK and US are sometimes referred to as the P3).
SLCM-N	An SLCM-N is a cruise missile armed with a nuclear warhead that is launched from either a submarine or a surface ship. The Biden Administration is funding research towards the development of this capability, as a part of the modernization of the US nuclear weapons arsenal.
SSN	An SSN is a nuclear-powered attack submarine. SSN is the NATO hull classification symbol (the SS denotes submarine and the N denotes nuclear power). An SSBN is a ballistic missile submarine, capable of deploying submarine-launched ballistic missiles (SLBMs) with nuclear warheads. The extra B denotes 'ballistic'. The AUKUS deal covers the transfer of SSNs and not SSBNs. Australia's submarines will not be armed with nuclear weapons. (UK SSNs do not carry nuclear weapons either, but in future US SSNs might be armed with the US SLCM-N that is under development).
TLAM	The Tomahawk Land Attack Missile (TLAM) is a long-range, jet powered, subsonic, conventionally-armed cruise missile that is used by the United States Navy and the UK Royal Navy in surface ship and submarine-based land-attack operations. The TLAMs sold to Australia, like those sold to the UK, will be the submarine-launched variants.
TPNW	The Treaty on the Prohibition of Nuclear Weapons (2017) is the first legally binding international agreement to comprehensively prohibit nuclear weapons with the ultimate goal being their total elimination. It was adopted on 7 July 2017, opened for signature on 20 September 2017, and entered into force on 22 January 2021. At the time of the AUKUS announcement it had 86 signatories and 56 states parties. All three AUKUS partners strongly oppose the TPNW because it delegitimises nuclear deterrence.



AUKUS Leaders: Prime Minister Johnson, President Biden, and Prime Minister Morrison

EXECUTIVE SUMMARY

For the first time since the 1958 agreement with the UK, the US has agreed to share sensitive design details of its Naval Nuclear Propulsion Programme (NNPP) with a third country. In a mechanism whose detail has yet to be announced, or fully worked through in detail by the partners, Australia will build nuclear-powered attack submarines (SSNs) to replace its ageing Collins-class vessels.

It is not yet clear by whom or in which country the propulsion section of the submarines will be built. AUKUS partners have started an 18-month project to refine the details but, however the submarines are procured and constructed, in the end Australia will own, operate, and maintain a fleet of nuclear-powered submarines. Additionally, the agreement makes provision for these SSN to be armed, in common with UK SSNs, with US Tomahawk submarine launched land attack cruise missiles (TLAM).

While the announcements were meticulous in not naming any perceived adversary, AUKUS is primarily a burden-sharing arrangement to counter Chinese influence and potential dominance in the Asia-Pacific. Its goal is to uphold vital US interests in the region and protect the US allies that are most vulnerable to adversarial pressure from China and the DPRK.

The diplomatically clumsy circumstances of the AUKUS announcement will ensure that its shocks and aftershocks will be felt around the world for some time to come. Nevertheless, there are some potential benefits of the pact that should not be overshadowed. Chief among these are the potential strategic benefits, enhancing the capacity of AUKUS partners to address threat contingencies as they evolve in the Asia-Pacific. In deepening Australian, US and UK defence cooperation and engagement in the region, at its best it could help ensure that no one state is able to gain effective sea control over international waters. As US relative power is expected to decline in the coming decades, this could prove critical for US allies and all states in the region.

There are, however, numerous challenges and risks associated with what The Economist has called “a profound geopolitical shift.”¹ The most significant of these relate to the proposed submarine deal and the transfer of TLAM technology: capabilities that could dramatically enhance Australia’s defence potency but also increase threat perceptions, fuel arms racing behaviours, and potentially undermine international controls on some of the world’s most sensitive technologies.

The report identifies several dangers related to the AUKUS pact. These include:

Eroding the rules. At the top of the list of concerns is the damage AUKUS could do to the international regime that controls the spread of nuclear weapons. If US and UK assistance to Australia’s nuclear-submarine programme is seen as flouting the rules, it could exacerbate divisions among regime members and weaken commitments that have helped slow the spread of nuclear weapons technology. At worst, this could embolden the pro-nuclear weapons lobby in states that are reviewing their nuclear options, including in South Korea, where pro-nuclear voices have been getting louder.

Arms racing & submarine proliferation. The submarine deal could also prompt other states to rethink their submarine ambitions, potentially unleashing fresh proliferation dynamics among the world’s SSN (nuclear-powered attack submarine) aspirants. The resources and technology required to build and operate these vessels is prohibitive for most states, but the announcement that the US and UK are willing to assist Australia could encourage copycat behaviour, with potential suppliers such as China and Russia willing to assist other states.

¹ “The strategic reverberations of the AUKUS deal will be big and lasting,” The Economist, 19 September 2021, https://www.economist.com/international/2021/09/19/the-strategic-reverberations-of-the-aucus-deal-will-be-big-and-lasting?itm_source=parsely-api

Escalation dangers of dual-capable cruise missiles. The transfer of TLAM to Australia highlights two issues: a potential broadening of the risks of dual capable cruise missiles and a weakening of the export control regime that deals with sensitive missile technologies (the MTCR). The missiles sold to Australia will be armed with conventional warheads, but even so, their use would increase the risk of miscalculation and escalation to nuclear war should the US make operational their intended SLCM-N programme. This is because neither China nor the DPRK could then be certain whether a cruise missile launched from an American or Australian submarine was nuclear armed until it detonated, prompting a counter launch before the missile strikes.

Unvarnished power politics. Broader geo-strategic implications need careful consideration. One is the possibility that the AUKUS pact could accelerate the trend towards unvarnished power politics in the Asia-Pacific, particularly if it drives China and Russia closer together and ASEAN members further apart.

The report proposes seven measures to help mitigate these risks:

1. Increasing international awareness of Australia's legislation, which prohibits the development of nuclear weapons and uranium enrichment facilities, would help reassure other countries that Australia remains serious about its nuclear non-proliferation commitments.
2. An early decision to use lifetime reactor cores (which would be sealed into the reactor for the lifetime of the submarine and would not need refuelling), would help address concerns about the diversion of nuclear material from the naval reactors into a nuclear weapons programme.
3. Immediate initiation of work with the International Atomic Energy Agency (IAEA) to develop new monitoring arrangements would increase confidence that Australia intends to use its nuclear reactors for naval nuclear propulsion only.
4. A US commitment to champion a voluntary moratorium on the deployment of new nuclear cruise missile capabilities and a commitment to engage in bilateral and regional dialogue on decommissioning current types in service, would address escalation risks. By initiating this, the US would help demonstrate joint AUKUS commitment to the security of all Asia-Pacific peoples – an essential step and a shared responsibility that would help dissipate some of the fear and anger generated by the abrupt and poorly-handled AUKUS announcement.
5. Steps to repair and recommit to the MTCR (including a pledge by AUKUS partners not to further erode export controls on the most sensitive technologies that could be used to deliver nuclear weapons) would help reduce arms racing dynamics.
6. Reinvigorating regional diplomacy would prove AUKUS partners are committed to peace and security in the Asia-Pacific. Priorities should include resuming the stalled DPRK nuclear negotiations; working inclusively with states in the region to create a Northeast Asian security architecture; reinforcing ASEAN's security-building role in Southeast Asia and the wider region; respecting and upholding the nuclear-weapon-

free zones in Southeast Asia and the South Pacific; and reassuring states across the Asia-Pacific that their AUKUS-related safety and security concerns are being addressed, including Indonesian and Malaysian concerns over the movement of nuclear-powered vessels through territorial waters.

7. A strong joint statement on upholding the Nuclear Non-proliferation Treaty (NPT) ahead of the delayed 2020 Review Conference would help reduce the diplomatic fallout from AUKUS, particularly if this opportunity is used to add detail and substance to the AUKUS pledge that “Australia remains committed to fulfilling all of its obligations as a non-nuclear weapon state, including with the International Atomic Energy Agency.”

Section 1.

INTRODUCTION

On 15 September, Australia, the UK and US (AUKUS) announced the first nuclear propulsion sharing programme since 1958 and the first ever between nuclear weapon states (NWS) and a non-nuclear weapon state (NNWS), cooperating to deliver a new class of nuclear-powered submarine (SSN) to the Royal Australian Navy (RAN). The new pact ended the deal Australia made with France to supply diesel-electric submarines (SSKs) to replace its ageing Collins-class fleet. Additionally, Australia and the US agreed the acquisition of Tomahawk Land Attack Missiles (TLAM) for the new class of submarine.

As the three leaders stated: “Guided by our enduring ideals and shared commitment to the international rules-based order, we resolve to deepen diplomatic, security, and defense cooperation”² in the Asia-Pacific ³ region, the agreement covered a broader range of collaborative areas, but the seismic responses largely have the submarine, propulsion and missile elements at their epicentre. The nature of its genesis and the, at best, diplomatically clumsy circumstances of its announcement ensured the shocks, aftershocks and longer-term effects are being felt around the world and have overshadowed the positives.

In many ways, the timing of the AUKUS announcement could not have been worse, coming at a time when the non-proliferation regime is under intense stress.

In many ways, the timing of the AUKUS announcement could not have been worse, coming at a time when the non-proliferation regime is under intense stress. The immediate damage has been significant: AUKUS has split France, the UK and US (the “P3”); pushed hard at the nuclear propulsion gap in the Nuclear Non-Proliferation Treaty (NPT); and stressed the Missile Technology Control Regime (MTCR).

² Joint Leaders Statement on AUKUS, The White House Briefing Room, 15 September 2021 <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/15/joint-leaders-statement-on-aucus/>

³ This paper, published by the APLN, will use Asia-Pacific as the region descriptor, seeing it to be inseparable from the more recent US choice of Indo-Pacific, which was reflected in the Joint Leaders’ Statement announcing AUKUS.

In fairness, the prospects for the pandemic-delayed NPT Review Conference were already less than rosy, and it was clear states parties were going to have to work to find common ground - especially between signatories and non-signatories of the Treaty on the Prohibition of Nuclear Weapons (TPNW). But AUKUS has introduced a further rift among the P5 and is likely to leave the Non-Proliferation and Disarmament Initiative (NPDI) similarly divided with its co-founder, Australia in the process of acquiring submarine power plants.

This analysis will examine the key geopolitical implications of the AUKUS pact, exploring its potential risks and benefits as well as setting out recommendations on how to mitigate some of its more negative impacts.

While the AUKUS agreement covers a broad range of cooperative areas, this paper will concentrate on those that led AUKUS to be formed: the submarine deal and the associated transfer of TLAM technology. Other collaborative activities (wider defence technology cooperation including artificial intelligence, cyber and emerging technologies) would likely have occurred through other partnerships of the countries involved and are not explored here.



USS MICHIGAN (SSGN), fitted with special forces underwater delivery vehicle hangar, arriving at HMAS Stirling (Fleet Base West), Garden Island, WA, Australia.

Section 2.

THE SUBMARINE PROGRAMME - THE DEVIL IS IN THE DETAIL

For the first time since the 1958 agreement with the UK, the US has agreed to share sensitive design details of its Naval Nuclear Propulsion Programme (NNPP) with a third nation. In a mechanism whose detail has yet to be worked by the partners, Australia will build SSNs to replace its ageing Collins-class SSKs.

It is not yet clear by whom or in which country the propulsion section of the submarines will be built and the AUKUS partners have started an 18-month project to refine the details. Given the tenor of the announcement it could be deduced that the UK programme will play a significant part.

However, the submarines are procured and constructed, in the end Australia will own, operate, and maintain a fleet of nuclear-powered submarines. Additionally, the agreement makes provision for these SSNs to be armed, in common with UK SSNs, with US Tomahawk submarine launched land attack cruise missiles (SLCM).

Australia has considered becoming an SSN operator before; at nearly every review of the future of its submarine arm, the option to “go nuclear” was considered and ultimately rejected...If the Australian nuclear submarine project comes to fruition, it will be the first time a nuclear submarine operating nation is not already a nuclear weapons possessor.

If the Australian nuclear submarine project comes to fruition, it will be the first time a nuclear submarine operating nation is not already a nuclear weapons possessor. This places Australia's relationship with the International Atomic Energy Agency (IAEA) into uncharted territory regarding the management of the fissile material necessary for the reactors. This is just one of the many issues facing those in the three AUKUS countries now charged with turning the concept into reality. The fissile material proliferation and security implications as well as the ramifications of AUKUS for the MTCR will be covered later in the paper.

Australia has considered becoming an SSN operator before; at nearly every review of the future of its submarine arm, the option to “go nuclear” was considered and ultimately rejected. The opportunity to further cement the close and enduring alliance between the US and Australia amid the Asia-Pacific's rapidly deteriorating strategic landscape undoubtedly swung the balance on this occasion.

There are clear differences between the background to the original US nuclear propulsion programme (and that of the UK SSN and SSBN in the 1960s) and Australia's new programme. Both the UK and the US had large conventional submarine forces with a reservoir of manpower able to cope with the significant change of gear a nuclear submarine programme requires. Additionally, the UK and US programmes were both deemed "national efforts" and received very significant priority and funding to enable their swift completion. The US and UK also built their nuclear submarine fleets in a very different national and international treaty and regulatory environment.

Time will tell whether the political and fiscal will of Australia will be sufficient to drive such a programme to hulls at sea in today's more complex environment.

Programme challenges

Should the propulsion plant of the Australian SSN be delivered primarily by Rolls-Royce in the UK, it would bring both risks and benefits to the UK programme. The benefits of a longer production run of the plant currently being designed and built for the Dreadnought SSBN (a lifetime core, the most likely UK design to be the basis for an Australian version) are clear. Scale matters in these complex programmes to manage unit cost and emerging issues.

Equally, however, there must be doubt about the capacity of the UK to make good on such a programme. As successive UK oversight reports show, the UK enterprise is finding delivery of its national construction programme challenging. Success in the AUKUS venture will depend on balancing how much of the restricted UK talent has its resources diverted to this project and how much remains focused on the delivery of the UK SSBN programme.

The lead time of a new SSN project will almost certainly be longer than the projected operational life of Australia's current Collins class submarines, implicitly extended to the "early 2030s" in the 2016 Australian Defence White Paper.⁴ To maintain a capability, one option would be to "lease" SSNs or at least operate either US or UK SSN(s) out of Perth with perhaps a mixed nationality crew. The national security challenges of this should not be underestimated as well as the stress such a forward deployment would place particularly on the UK SSN operational programme, but also its very stretched and stressed specialist manpower pool, of which more below. This option would also mean that the elements of the programme that delivered Australian support infrastructure and legislative cover sufficient to operate and maintain allied SSN from Perth (which is considerably more complex than that currently in place to allow short duration visits) would have to be well ahead of their construction programme.

⁴ Australian Defence White Paper 2016, Australian Government, Department of Defence <https://www1.defence.gov.au/sites/default/files/2021-08/2016-Defence-White-Paper.pdf>, p. 91.



Tomahawk cruise missile (UK MoD)

Whatever the future of hard resource allocated, a critical factor for Australia will be achieving the necessary “bulge” in personnel across the submarine enterprise and executing a complex training and qualification programme ahead of actual submarine production and delivery. Depending on the final build and delivery mechanism we can expect to see significant personnel cross-pollination between the UK, US and Australia. It is no secret that the Australians share the challenge of manning their current submarines; the move to a larger pool of SSN-qualified personnel, especially in those directly operating the reactor plant will be no simple task.

For the UK in particular, this necessity carries specific risk. The UK submarine programme already has high-risk markers in its manpower across all aspects of the enterprise and AUKUS will place a further burden that will demand exquisite planning and resourcing in advance (neither of which have been strong hallmarks of personnel strategies over the past decade) to maintain both at the same time.

Additionally, potential alternative employment opportunities in Australia - particularly for those in highly-specialised Royal Navy submarine service and support roles - will be a stressor for UK retention. In broad quality of life terms, Garden Island easily outshines the Gareloch. For early or mid-career British submariners and their families, additional doubts over the medium to long-term future of Faslane, given the confidence in the Scottish National Party of a second independence referendum, will only exacerbate this. What would ease Australia's challenge will exacerbate the UK's and managing this will be challenging.

From the US perspective, their larger national programme would be more likely to be able to absorb the additional activity to construct the nuclear propulsion modules. With US SSNs already forward-based in Guam, the addition of a certified nuclear submarine berth in Perth would add further operational flexibility to the US Navy (unless or until a nuclear SLCM was operational in the submarine force);⁵ the Spratly Islands are half the distance from Perth than they are from Pearl Harbor. The nature of the announcement seemed to preclude an Australia-US submarine project, however.

⁵ Under the terms of the NPT, the Rarotonga Treaty and Australian domestic legislation, Australia cannot be used as a base for submarines that are armed with nuclear weapons.



US Navy crewmen on the casing of a Virginia class attack submarine (SSN)

AUKUS, a uniquely anglophone yet geographically distant grouping of countries, will serve the sometimes homogenous, sometimes disparate objectives of its three partners but also risks imbalance and unintended consequences for the complex geopolitical ecosystem

Section 3.

STRATEGIC IMPLICATIONS

The Asia-Pacific region is awash with regional alliances, economic and military treaties and historical amities and enmities, arguably more so than any other region on earth. The addition of AUKUS, a uniquely anglophone yet geographically distant grouping of countries, will serve the sometimes homogenous, sometimes disparate objectives of its three partners but also risks imbalance and unintended consequences for the complex geopolitical ecosystem. In this part we identify (necessarily with extreme brevity given the complexity) some key implications arising.

National perspectives of the AUKUS partners

The US. For the US, while the announcements were meticulous in not naming any perceived adversary, AUKUS is primarily a burden-sharing arrangement to counter Chinese influence and potential dominance in the Asia-Pacific. Its goal is to protect vital US interests in the region and protect the US allies that are most vulnerable to adversarial pressure from China and the DPRK.

The US Navy is pre-eminent, but it is stretched across the globe, and while increasing sophistication of its platforms has allowed effective multitasking across warfare disciplines, the accompanying decline in platform numbers causes geographic stresses. From US pressure on the North Atlantic Treaty Organization (NATO) to contribute more, to support for UK deployments outside the NATO area of responsibility (AOR), and the AUKUS agreement, the US seeks allied capability to allow it to relieve stretch and increase flexibility.

There is no doubt that many in the US military regard Australia as a steadier and more reliable ally than any other (Australia was the only country to deploy to Vietnam with the US, for example). As the US has been shifting its strategic centre of gravity from the Atlantic to the Pacific, Australia's geography has become even more important to the US. On 21 September 2021, President Biden declared: "The United States has no closer or more reliable ally than Australia" - a statement that might privately have put at least British and French noses out of joint for different reasons and is likely to have been equally poorly received in Seoul and Tokyo.

The US also understands its relations with France in the region and globally to be important, which is why it has been the first to openly mend fences at the highest level.

Australia. Withdrawal from the French contract for the replacement submarines has significantly damaged Australia-France relations and it is too early to determine what the full ramifications will be. Australia will undoubtedly incur a significant fiscal penalty which will start the AUKUS submarine budget well in the red.

More significant, however, is the impact of AUKUS on Australia's relationship with its immediate neighbours and states in the wider Asia-Pacific. The AUKUS pact has ended a period where Australia walked a fine line between Chinese and US interests in the region, and its hope that trade links could be relied upon to safeguard its future. AUKUS squares Australia firmly with the US in the desire to contain China's ambitions, including, if necessary, with military power. In return for openly choosing this risky path, Australia will get new submarines and missiles and an era of even closer collaboration. Yet this clear alignment with a more confrontational US-China policy will add further momentum to China's ability to use trade as a tool to exert influence; China remains Australia's main trading partner and the latter is likely to be the canary as the west seeks ways to contain China while largely relying on its trade.

That Australia leapt at the chance for SSNs as part of AUKUS negotiations, even at the cost of breaking a contract with France, should not have come as a surprise. The most recent Defence White Paper of 2016 described Canberra's submarine capability requirements in terms any SSN nation would recognise and which any SSK force (even under the French programme) would be challenged to deliver:

Submarines are an essential part of Australia's naval capability, providing a strategic advantage in terms of surveillance and protection of our maritime approaches. The Government has determined that regionally superior submarines with a high degree of interoperability with the United States are required to provide Australia with an effective deterrent, including by making a meaningful contribution to anti-submarine warfare operations in our region. The key capabilities of the future submarine will include: anti-submarine warfare; anti-surface warfare; intelligence, surveillance and reconnaissance; and support to special operations.⁶

This language continued in the 2020 Defence Strategic Update and Force Structure Plan.⁷

⁶ Australian Defence White Paper 2016, Section 4.25, Australian Government, Department of Defence, 25 February 2016 <https://www1.defence.gov.au/about/publications/2016-defence-white-paper>

⁷ Australian Force Structure Plan 2020, Section 4.7, Australian Government, Department of Defence, 1 July 2020 <https://www1.defence.gov.au/about/publications/2020-force-structure-plan>

The UK. Recognising the slow US pivot to the Asia-Pacific, which accelerated during the Obama administration, the UK has conducted some high profile, largely maritime, deployments to the region over the same timescale, largely against the “nothing beyond the Gulf” founding premise of the 1998 Strategic Defence Review (SDR).⁸ The most ambitious since the Ocean Wave deployment around the time of the handover of Hong Kong in 1997 is currently underway, with HMS Queen Elizabeth’s Multinational Carrier Group 21 operating throughout the region.

The AUKUS agreement reflects the commitment, set out in the UK Integrated Review, to deepen cooperation and engagement in the Asia-Pacific region. This brings benefits but could also have unintended consequences.

The ultimate presence of a fully capable SSN support base in Australia will allow UK SSNs much greater operational flexibility in the region and might even make possible the extended forward deployment of a UK SSN to Western Australia.

On the positive side, the ultimate presence of a fully capable SSN support base in Australia will allow UK SSNs much greater operational flexibility in the region and might even make possible the extended forward deployment of a UK SSN to Western Australia. Despite much inaccurate and sensational reporting, UK SSNs, while nuclear-powered, have no capability for carrying nuclear weapons. Any such basing arrangement would not undermine the Treaty of Rarotonga, which forbids the basing of nuclear weapons in the area as part of the South Pacific Nuclear Free Zone (SPNFZ).⁹ The region is at least 10,000 miles from the UK base in Faslane, and while nuclear fuel is immensely efficient it is not inexhaustible, thus a forward base (whatever its costs in terms of personnel disruption and geographically skewed availability) would be a significant enabler of any sustained presence. It is worth remembering, however, that when the UK 1998 SDR reduced the fleet to just 10 SSNs (and subsequent reviews to seven), it explicitly excluded regular operations of this nature; a permanent or semi-permanent basing of even one UK SSN in Perth would make completion of UK SSN tasks in the NATO AOR much more challenging.

8 Interestingly, the only time the words “South East Asia” appeared in the 1998 SDR was one sentence in relation to the Five Powers Defence Agreement (FPDA). “Pacific” was mentioned only once in the context of the South Pacific NWFZ. The 1998 SDR was effectively Asia-Pacific blind. See: UK Govt Archives: SDR 1998

9 The UK has signed and ratified all three protocols to the Rarotonga Treaty. Article 5, paragraph 1 states: “Each Party undertakes to prevent in its territory the stationing of any nuclear explosive device.” Article 1 of Protocol I states: “Each Party undertakes to apply...the prohibitions contained in Articles 3, 5 and 6, in so far as they relate to the manufacture, stationing and testing of any nuclear explosive device within those territories, and the safeguards specified in Article 8(2)(c) and Annex 2 of the Treaty.” See SOUTH PACIFIC NUCLEAR-FREE ZONE (TREATY OF RAROTONGA) (nti.org)

On the other hand, once the Australian SSNs are operational, their proximity to the operating areas of AUKUS interest would make them a more present partner for US operations, particularly as the TLAM sale will give the Australian SSNs a similar breadth of capabilities to their UK counterparts. While the UK has declared its intention to continue operating in the Asia-Pacific, AUKUS might eventually lead the US to press that UK SSNs might better be deployed west of Suez to increase US deployment flexibility in the Pacific. In advance of the AUKUS announcement and in late July, speaking on “The Imperative of Partnership” at the Singapore office of the International Institute for Strategic Studies (IISS), US Secretary of Defense Lloyd Austin indicated that the US was already thinking along these lines:

We are -- we -- the U.K. and the United States are global nations with global interests. And so, as we look to balance our efforts in various parts of the world, we're not only looking to help each other in the Indo-Pacific, but we're looking to ensure that we help each other in other parts of the world. As well as, if, for example, we focus a bit more here, are there areas that the UK can be more helpful in other parts of the world?¹⁰

Of course, this would not necessarily be the case until the mid-2040s, when the Australian SSN programme would be first fully operational.

Wider alliance perspectives and implications

France. By omission, France is the 4th, and shadow, “main player” in the AUKUS pact. There is no doubt that, for whatever reason, the handling of France by the AUKUS partners in the genesis and announcement of the agreement was less than ideal. In the immediate aftermath of the AUKUS announcement, France's reaction can best be described as incendiary. A combination of the most undiplomatic language, recalling diplomats from Washington and Canberra and a breadth of activity in bilateral and multilateral fora to thwart cooperation with the AUKUS partners has been the hallmark of its anger. The economic and prestige loss suffered by France have taken centre stage in the media, but these could be shorter lasting than the deep feeling of betrayal and loss of trust keenly and openly felt in Paris. There is a counter view in Australia, that however strongly France claims its innocence in the loss of the contract, its genesis in 2016 - when the French gazumped a German bid at the 11th hour - salted the deal with a lot of mistrust and likely sowed the seeds for AUKUS to reap.¹¹

10 US Secretary of Defense Lloyd Austin, IISS Fullerton Lecture, 27 July 2021 <https://www.defense.gov/Newsroom/Transcripts/Transcript/Article/2711025/secretary-of-defense-lloyd-j-austin-iii-participates-in-fullerton-lecture-serie/>

11 Robert Gottlieb, “Conned on defence, now it's time to fix the mess”, *The Australian*, 18 September 2021, <https://www.theaustralian.com.au/business/conned-on-defence-its-time-to-fix-the-mess/news-story/10105e9e65f054bbbed5761c523c5a03a>

Australia-EU Free Trade Agreement negotiations have been an early target of France's ire. It is likely that France will gain significant concessions across the board as the AUKUS partners scramble to repair the damage done, but their different approaches speak volumes about the relative damage thus far. At the time of writing, Morrison and Macron have yet to speak; Biden called Macron on 22 September with a France-positive joint statement thereafter; while Johnson first resorted to poorly judged Franglais humour which appeared to have stoked the fire, and their first post-AUKUS call initiated by Johnson a few days later indicated there are still many bridges to rebuild.

By omission, France is the 4th, and shadow, “main player” in the AUKUS pact.

ASEAN. Until now, Australia's efforts to avoid a confrontational approach with China led its strategic interests to align closely with its neighbours, resulting in a more inclusive approach to regional diplomacy than might be possible in the wake of the AUKUS announcement. Much depends on how effectively Australia can engage in diplomatic damage limitation, including in response to genuine concerns related to proliferation, arms racing and submarine deployments in Southeast Asia and the Southwest Pacific.¹² If Australia fails to ameliorate these concerns, one of the unintended consequences of the AUKUS partnership could be the sidelining and internal division of the Association of Southeast Asian Nations (ASEAN), which over many years has played a crucial dialogue role in the Asia-Pacific.

The outcome of ASEAN's decline would almost certainly be a return to unvarnished power politics, which could backfire for Australia and the wider region.¹³ In many ways, this situation offers an opportunity to France and the EU, which, smarting from the AUKUS lesson - i.e. “that when it comes to China, the United States does not value nor trust its European partners”¹⁴ - could step in and play a more significant diplomatic role in the

12 Hoang Thi Ha, “The Aukus challenge to Asean,” The Straits Times, 25 September 2021, <https://www.straitstimes.com/opinion/the-aukus-challenge-to-asean>; Mely Caballero-Anthony, “AUKUS raises questions and concerns in Southeast Asia,” APLN Commentaries, 20 September 2021, <https://www.apln.network/analysis/commentaries/aukus-raises-questions-and-concerns-in-southeast-asia>; Marty Natalegawa, “AUKUS - A Wake Up Call for ASEAN?” The Pulse, Asia-Pacific Leadership Network, 17 September 2021, <https://www.apln.network/analysis/the-pulse/implications-of-the-aukus-deal>

13 Australia has arguably enjoyed greater strategic benefits from ASEAN than any other non-member, especially with respect to Indonesia, its immediate and powerful neighbour, which once had nuclear weapons ambitions. The strategic risks associated with sidelining ASEAN should not be underestimated, including by those who have long criticised ASEAN for its failure to effectively address hard security challenges. See John Blaxland, “ASEAN matters and deserves credit,” The Interpreter, 6 February 2018, <https://www.lowyinstitute.org/the-interpreter/asean-matters-and-deserves-credit>

14 Rosa Balfour, “What the U.S.-British-Australian Security Pact Means for Europe” 21 September 2021, <https://>

region. Indeed, the EU's Asia strategy, which was developed in consultation with the region, is seen as being inclusive and respectful by countries in Southeast Asia, whereas the AUKUS pact, which was sprung upon the region (as well as France) seems already to be seen as a product of the "Anglosphere" and regarded as regionally relatively tone-deaf and even retro-colonial in its approach.

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NATO. On the face of it, AUKUS should pose no direct problems for NATO; some members also have a diverse range of separate alliances. The French reaction to its genesis, however, makes a NATO effect inevitable. Two elements fall out: firstly, a renewed lack of trust in the US which has undone the positive work the Biden administration has undertaken to assure allies after the schism with President Trump. Secondly, the delicate relationship between the UK and NATO after BREXIT, where a significant number of key NATO allies also in the EU have watched the UK try to juggle government positions of faith towards NATO and repeated xenophobic rhetoric towards the EU. The EU State of the Union speech by Ursula von der Leyen¹⁵ included a strong call for the EU to have a stronger military role (both locally and in an expeditionary sense), which will further salt the AUKUS wound between the UK and its European NATO allies.

Five Eyes. While 5-Eyes has a global viewpoint, four of its members lie in or border the Asia-Pacific region. Without careful management AUKUS risks marginalising the 5-Eyes agreement and this in turn could shed more light on the imbalances between 21st century alliances and 20th century intelligence (INTEL) sharing agreements. Both Canada and New Zealand are outside AUKUS and while Canada has so far kept its powder dry, New Zealand has reacted negatively. Born during World War Two, the 5-Eyes is primarily an INTEL sharing relationship and there have been calls to overhaul it to meet the changing requirements of the US and UK (the two main generators of the intelligence that is shared). Proposals have included bringing in a European NATO nation that is attuned to joining coalitions of the willing (e.g. Germany, the Netherlands or France); another explores the prospects of bringing in Japan to represent a key US ally and significant force in the Asia-Pacific region.

carnegieeurope.eu/strategieurope/85392

15 Ursula von der Leyen, EU State of the Union Speech, 15 September 2021, https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_21_4701

Separately, NATO already has multiple layers of access to INTEL and often in the past (especially during conflicts in Iraq, the former Yugoslavia and most recently Crimea/Ukraine) this has meant the US asking for NATO action on either a “trust us, the INTEL is there” or a limited drip-feed release. The past corrosive effect of this on alliance cohesion must be recognised; often NATO official INTEL has been at odds and less effective in driving activity than that derived from US sources, or UK/US sources. There is therefore a similar potential for such coherence and trust corrosion within the alliances in the Asia-Pacific region, as well as the possibility of yet another irritant within NATO where a non-NATO ally (Australia) gets “preferential” INTEL from the US as part of the SSN operations deal. None of this is unavoidable, but careful alliance diplomacy in multiple directions is needed.

China and Russia. Although the announcements were very careful not to name a targeted adversary, no Asia-Pacific nation is under any doubt that the rationale for AUKUS is ensuring Chinese ambition is not detrimental to the interests of the group and their allies in the region.

A growing recognition that China will collaborate to meet its needs while at the same time pursuing a long-term and breathtakingly broad maritime strategy that has Chinese interests as its sole centre of gravity has led to this point. AUKUS, from the perspective of its members, is a crystallisation of the realisation that China’s ambitions are a) single-minded and steadfast and b) require a stronger counter-balance within the region if other interests are to be protected. One of the key strategic grounds upon which this will be tested is the Chinese ambition to draw, effectively, a vast area of international waters and other nations’ exclusive economic zones (EEZs) into Chinese direct influence and then control tantamount to ownership. From developing military capabilities to enforce and exclude, engaging in overt activities on the island outposts, and pursuing more subtle means of establishing control, Beijing’s concept is simple: deny access over a large area and gain effective sea control.

Russia, too, has reason to support, in principle, the direction of travel of China in this regard. From the Barents Sea, through the Black Sea and vast swathes of the slowly more accessible high north and Arctic Ocean, Russia has similar physical and legal area denial and ownership ambitions. The seas off Pacific-facing Russia, from the northern Sea of Japan to Okhotsk are less contested, but the ambition is undoubtedly the same.

AUKUS, and its point programme, the SSN fleet for Australia, adds a regional power with the capabilities to collaborate in a direct challenge to this. While the US’ primary means of assuring access against such denial strategies are the US Navy’s carrier battle groups, SSNs are uniquely able to gain access to bodies of water to which access is more easily denied for more visible units, or for whom achieving access in peace and crisis might prove over-escalatory.

From the perspective of keeping Chinese ambitions in check, this is positive. But because the AUKUS pact will be perceived as threatening to both Russian and Chinese interests in the Asia-Pacific, it could drive further Russian-Chinese defence cooperation and perhaps even encourage movement towards a formal Sino-Russian alliance.

AUKUS partners are clearly aware of this, and although they have been careful to avoid inflammatory language, there is no doubt that AUKUS places further stress on US-China and Australia-China relations. Depending on the nature of the programme once resolved this could also include UK-Chinese relations (although the UK is always going to be the minor partner in this). This fallout, combined with P3 divisions and discord in NATO, could complicate the emergence of a coherent AUKUS strategy in the Asia-Pacific, which is probably music to Moscow's ears.



Disputed maritime territory in East Asia

The Korean Peninsula. Last but not least, the AUKUS pact will be regarded by some in the region (especially in South Korea) as further evidence that the US Asia-Pacific strategy is all about China, to the extent that seriously addressing the North Korea nuclear challenge is not a Biden priority. This is probably not the case, but the Administration has been relatively silent on the matter and it might be necessary to wait until the upcoming US Nuclear Posture Review to gain more clarity. Many of the geopolitical outcomes will be driven by the complex regional optics and thus there is a lot to be done to reassure all stakeholders in the region.

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Section 4.

PROLIFERATION IMPLICATIONS

While there are clearly some important strategic benefits as well as risks associated with the emergence of AUKUS, one risk requires careful elaboration: the potential damage it could inflict on the nuclear non-proliferation regime. Even though the regime plays a vital role in reducing nuclear dangers, including in the world's hotspots, insecurities stemming from China's rise are leading states in the Asia-Pacific to prioritise defence capability acquisitions over their non-proliferation and export control commitments, despite contributing to arms racing dynamics and escalation dangers. This is more likely to occur when regime obligations are loosely defined, unevenly upheld and under pressure from rapid technological change – all of which add complexity to cost/benefit calculations and make regime slippage more likely.

Key features of the AUKUS pact are part of this phenomenon: the transfer of nuclear propulsion technology to Australia highlights a gap in (and potential challenge to) the NPT¹⁶ at a time of rising maritime competition in the Asia-Pacific; while the agreement to supply Tomahawk SLCMs undermines the voluntary guidelines of the MTCR, which have been eroding in response to China's missile expansion and the collapse of the INF Treaty.¹⁷ All three AUKUS partners have been quick to state that they intend to uphold their regime obligations despite their agreement to share these extremely sensitive technologies, but valid questions are being raised about the detail and wider impact of their proposed plans, and urgent efforts are needed to mitigate potential risks.

The beleaguered NPT

Diplomatic fallout from AUKUS is likely to augur in difficult times for the increasingly beleaguered NPT. The timing could hardly have been worse, coinciding with the UN First Committee and coming at a time when states are preparing for the delayed 2020 NPT RevCon.

16 The NPT does not prohibit NNWS from building or operating nuclear-powered ships. This is an important gap in the regime because if (for practical and secrecy reasons), the IAEA cannot safeguard naval reactor fuel, it leaves open the possibility of diversion of nuclear material into a nuclear weapons programme. To date, no NNWS has ever progressed their SSN ambitions to the point where this potential loophole would be tested - Australia would be the first.

17 The MTCR was created to curb the spread of missiles and UAVs that could potentially be used to deliver nuclear weapons – specifically unmanned systems with a range of at least 300 km that could carry a payload of at least 500 kg. It establishes a strong presumption of denial (rather than a legal prohibition) on transfers of these systems.

Amid growing rifts between the NWS and NNWS, including over on-going nuclear modernisation programmes and backsliding on disarmament commitments, hopes that a diplomatically astute Biden administration could at least improve the atmospherics in New York might now be dashed. The reverberations from the AUKUS announcement could be profound, as the P5, which normally seek common ground among themselves for the sake of preserving the NPT, struggle to overcome acrimony within the group.¹⁸ Equally significant, achieving cohesion within the Non-Proliferation and Disarmament Initiative (NDPI), which was co-founded by Australia and plays an important role in reinforcing NPT obligations, is likely to be more difficult than ever.¹⁹ Divisions within both of these groupings could dissipate and dilute non-proliferation momentum at the RevCon, given the damaged moral authority of the AUKUS partners, which could face much stronger criticism and pushback as they try to champion non-proliferation goals.

It would be a mistake to dismiss or downplay the significance of these diplomatic ructions, given the NPT is arguably the most important strategic treaty ever inked, and its implementation and long-term survival are partly dependent on the review process. An important and immediate priority for the AUKUS partners should therefore be to try to limit the damage their announcement will have on the delayed NPT RevCon, including by working within the P5 and NPDI to address genuine concerns ahead of the January meeting. Platitudes will not be enough; they will need to repair their non-proliferation credentials by committing to a series of concrete steps that will help constrain proliferation pressures. Of course, this is not to imply that the AUKUS pact is the source of the non-proliferation regime's weaknesses (in many ways their defence-sharing arrangement is a response to them) or that they can rectify its most serious problems.

Having potentially exacerbated regional proliferation dynamics by agreeing to share some of the world's most proliferation sensitive military technologies, it is both in the interests of the AUKUS partners and their shared responsibility to take damage limitation steps that are within their purview.

¹⁸ The P5 are the permanent members of the UN Security Council: China, France, Russia, the UK and US. Within the NPT, they are referred to as nuclear-weapon states (NWS). They meet regularly between NPT Review Conferences in a forum called the P5 process, in which they address their unique responsibilities under the treaty. <https://www.europeanleadershipnetwork.org/the-p5-process/>

¹⁹ NPDI is a coalition of 12 states, which was launched at the UN First Committee in 2010 to “advance [NPT] nuclear disarmament and non-proliferation agendas as mutually reinforcing processes.” Its members are Australia, Canada, Chile, Germany, Japan, Mexico, the Netherlands, Nigeria, the Philippines, Poland, Turkey, and the United Arab Emirates. For more information, including official documents, see: <https://www.mofa.go.jp/policy/un/disarmament/npdi/index.html>.

Rather, having potentially exacerbated regional proliferation dynamics by agreeing to share some of the world's most proliferation sensitive military technologies, it is both in the interests of the AUKUS partners and their shared responsibility to take damage limitation steps that are within their purview.

Nuclear hedging and breakout risk in the region

Nuclear breakout pressures have been growing in the Asia-Pacific for some time, with constituencies in Japan, South Korea and even Australia calling for the revival of nuclear weapons programmes. Many experts worry the AUKUS agreement will indirectly and unintentionally feed these pressures, because although Australia's nuclear-powered submarines will not be nuclear-armed, the first-time transfer of naval nuclear propulsion technology from an NWS to an NNWS could be used to justify significant non-proliferation slippage.²⁰ The focus of this concern is not Australia (which in theory could already develop a crude nuclear weapon relatively quickly due to its natural uranium reserves, demonstrated laser enrichment capability, and past and current relevant knowledge²¹) or Japan (which could break out within months of a decision to do so²²). In both countries, even though hedging strategies appeal to sections of the defence community, there are powerful constraints on nuclear weapons development, which are reflected in national legislation and a shared 'nuclear allergy' among the public. The Asia-Pacific country that most nuclear non-proliferation experts worry about is South Korea, where, in contrast to Australia and Japan, public opinion favours the development of nuclear weapons²³ and where a short lead time to acquire a deliverable nuclear weapon already exists, as reinforced by Seoul's recent successful test of a submarine-launched ballistic missile (the first by a state that is not nuclear-armed).

20 James Acton, "Why the AUKUS Submarine Deal Is Bad for Nonproliferation—And What to Do About It," CEIP Commentary, 21 September 2021, <https://carnegieendowment.org/2021/09/21/why-aukus-submarine-deal-is-bad-for-nonproliferation-and-what-to-do-about-it-pub-85399>; Allan Behm, "Scott Morrison's Giant Nuclear Election Ploy," APLN Commentaries, 17 September 2021, <https://www.apln.network/analysis/commentaries/scott-morrison-s-giant-nuclear-election-plot>; John Tilemann, "Nuclear Submarines: Mitigating the Proliferation Impacts," TODA Peace Institute, 24 September 2021, <https://toda.org/global-outlook/nuclear-submarines-mitigating-the-proliferation-impacts.html>

21 Paul Dibb, "Nuclear Weapons Time for Australia?" *The National Interest*, 4 October 2018. <https://nationalinterest.org/blog/buzz/nuclear-weapons-time-australia-32572>; Samvrutha Bhavani Mukilan, "Australia's Nuclear Conundrum: A Hedging Strategy to Save the Day," *Australian Outlook*, 10 September 2020, <https://www.internationalaffairs.org.au/australianoutlook/australias-nuclear-conundrum-a-hedging-strategy-to-save-the-day/>

22 Mark Fitzpatrick, "How Japan Could Go Nuclear," *Foreign Affairs*, 3 October 2019, <https://www.foreignaffairs.com/articles/asia/2019-10-03/how-japan-could-go-nuclear>

23 William Kim, "Nuclear Weapons in South Korea? Not So Fringe Anymore," *The National Interest*, 21 August 2021, <https://nationalinterest.org/feature/nuclear-weapons-south-korea-not-so-fringe-anymore-192122>

Australia's decision to acquire nuclear-powered submarines, and US and UK willingness to assist, could embolden the pro-nuclear lobby in South Korea, exacerbating the action-reaction dynamics that have long plagued the peninsula, and potentially triggering the 'nuclear domino' that some regional experts fear.²⁴

NWS	Nuclear-Armed States		Other states	
<i>These states have both enrichment & reprocessing capabilities</i>		Enrichment capability	Reprocessing capability	Enrichment and reprocessing capabilities
United states	India	Argentina	Belgium	Brazil
Russia	Pakistan	Australia	Italy	Germany
UK	North Korea	Iran		Japan
France China	Israel*	Netherlands South Africa		
		South Korea**		
*Israel has neither confirmed nor denied nuclear-armed status. **South Korea had a secret laser enrichment programme, disclosed in 2004.				

Table 1: States with enrichment and/or reprocessing capability

SSN proliferation

The novelty of this technology transfer in the modern non-proliferation regime will not be lost on other nations. AUKUS could also have wider and more direct proliferation implications, encouraging other states in the region and beyond to review their international obligations and assess what they might be able to get away with on the back of the AUKUS announcement.

24 Moon Chung-in and Sue Jeong, "Is a Nuclear Domino Effect in Northeast Asia A Real Possibility?" Global Asia, June 2021, https://www.globalasia.org/v16no2/cover/is-a-nuclear-domino-effect-in-northeast-asia-a-real-possibility_chung-in-moon-sue-jeong

Brazil is building an SSN, the Álvaro Alberto, with French assistance on the non-nuclear construction as part of its wider Scorpene deal with Brazil.²⁵ The submarine is currently planned to commission in 2034.²⁶ Iran is another obvious candidate having announced its own nuclear submarine ambitions.²⁷

States with SSN ambitions, Pakistan included, could now find it easier to find partners who are willing to offer lucrative technological assistance... It could be argued that SSN proliferation beyond the nuclear-armed states was inevitable given the NPT loophole, but it is a dangerous prospect amid the region's rising maritime tensions and escalating missile race.

Even those who dismiss the impact AUKUS arrangements could have on nuclear breakout dynamics will probably acknowledge the risk of SSN proliferation, as states with SSN ambitions, Pakistan included, could now find it easier to find partners who are willing to offer lucrative technological assistance. China and Russia immediately spring to mind, but a smarting France should not be completely ruled out either, particularly if Brazil moves quickly to exploit the opportunity AUKUS has created. Japan and South Korea could also be tempted down this path – South Korea especially, having tried to secure US assistance to further its SSN ambitions, and now questioning why another US ally has succeeded in securing a fissile material supply pledge while its own efforts to do so have failed.²⁸ It could be argued that SSN proliferation beyond the nuclear-armed states was inevitable given the NPT loophole, but it is a dangerous prospect amid the region's rising maritime tensions and escalating missile race, and the uncertain impact of new and emerging technologies on strategic stability. This is particularly the case where, as in AUKUS, the technology is likely to be HEU-centric not LEU (as in French reactors). As James Acton has recently postulated, there might be no realistic proposition of Australia exploiting a naval propulsion programme to develop nuclear weapons, but the precedent it sets challenges the entire non-proliferation regime.²⁹

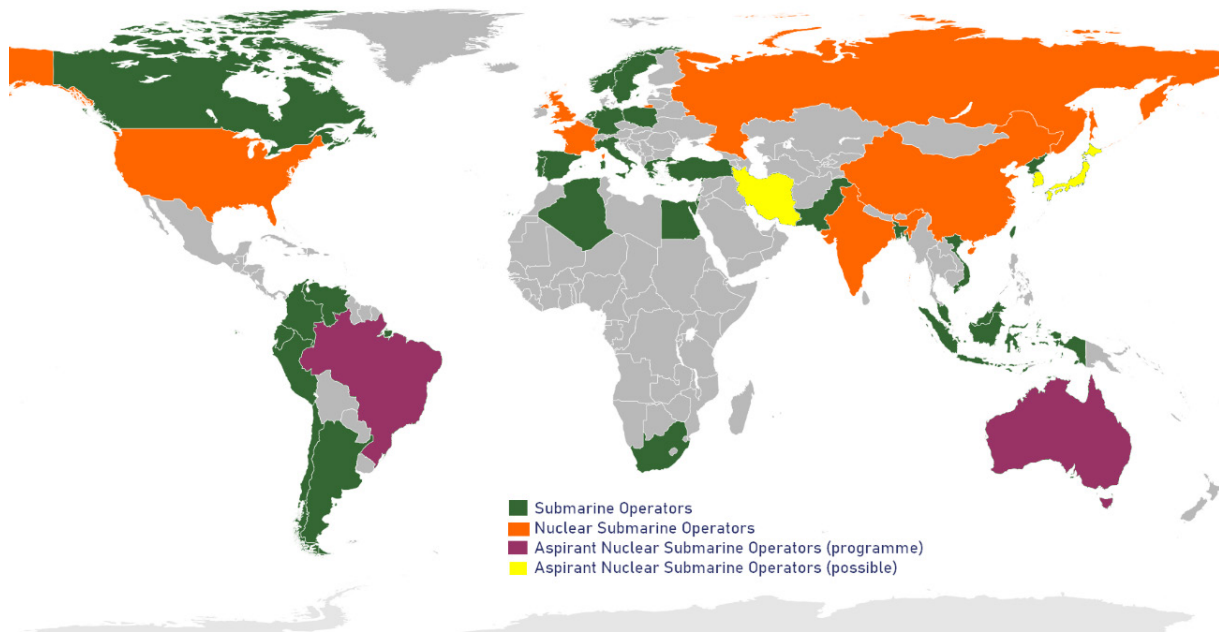
25 Leonardo Bandarra, "Brazilian nuclear policy under Bolsonaro: no nuclear weapons, but a nuclear submarine," Bulletin of the Atomic Scientists, 12 April 2019, <https://thebulletin.org/2019/04/brazilian-nuclear-policy-under-bolsonaro>

26 Navy Recognition, 4 June 21,

27 Bozorgmehr Sharafedin and Shadia Nasralla, "Iran to work on nuclear-powered vessels after U.S. 'violation' of deal," Reuters, 13 December, <https://www.reuters.com/article/us-usa-iran-nuclear-deals-idUSKBN14212X>

28 Chung-in Moon, "AUKUS: A View from Seoul," The Pulse, Asia-Pacific Leadership Network, 22 September 2021 <https://www.apln.network/analysis/the-pulse/implications-of-the-aukus-deal>

29 James Acton, "Why AUKUS Why the AUKUS Submarine Deal Is Bad for Nonproliferation," CEIP Commentary, 21 September 2021 <https://carnegieendowment.org/2021/09/21/why-aukus-submarine-deal-is-bad-for-nonproliferation-and-what-to-do-about-it-pub-85399>



Global SSN Proliferation

INF-range missile proliferation

The proposed transfer of US Tomahawk SLCMs to the Royal Australian Navy has attracted less media attention than the nuclear-powered submarines, but there are also significant risks attached to this aspect of AUKUS cooperation. The intentions behind the decision are to address China's rapidly growing and sophisticated missile arsenal, which has been generating insecurity in the Asia-Pacific for some time – even more so since this year's discovery of new and extensive Chinese missile bases.

Australia recently announced plans to develop its own precision-guided weapons,³⁰ but the long lead time to achieve reliable systems has helped drive the Tomahawk Land Attack Missiles (TLAM) deal, which is intended to plug a temporary capability gap. In this respect, the AUKUS pact shows how closely US and Australian strategic interests align, as long before the collapse of the INF Treaty in 2019, the US was watching China's growing superiority in INF-range missiles with alarm, and is now going all out to address the asymmetry.

The TLAM sale to Australia highlights two issues: a potential broadening of the risks of dual-capable cruise missiles and a weakening of the MTCR.³¹

The US TLAM sold to Australia will be armed with conventional warheads, but even so, their proliferation increases the risks of miscalculation and escalation, given China and North Korea are both nuclear-armed. The US is also working on a new, relatively low-yield nuclear SLCM (which Biden himself called “a bad idea” in 2019).

30 Prime Minister of Australia, “Sovereign Guided Weapons Manufacturing,” Press Release, 31 March 2021, <https://www.pm.gov.au/media/sovereign-guided-weapons-manufacturing>

31 Xu Tianran and Melissa Hanham, “The Next 50 Years of Missile Proliferation,” February 2021, https://cpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/3/1964/files/2021/03/XuTianran_MelissaHanham.pdf

The proliferation of dual-capable missiles could push nuclear-armed states to review their nuclear doctrines, including the role of first strike and 'left of launch' options, which could increase the incentives for some states to break out of the NPT.

The sale of TLAM to Australia risks adding further to the miscalculation and misinterpretation risks which dual capable cruise missiles bring in crisis and early conflict. In essence, since neither China nor DPRK could be certain whether a launched SLCM was from an American or Australian submarine and further whether it was nuclear armed (until it detonated), it might assume the worst case and respond accordingly, which might include a counter launch before TLAM detonation. With flight times up to in excess of two hours depending on the TLAM block sold to Australia, there is a lot of time for such misinterpretation.

This risk would essentially mean Australia could not launch TLAM against China or DPRK which would make rather moot the point of acquiring them in the first place. The recent test of a cruise missile by the DPRK and the assumption that it will eventually field a nuclear warhead has only underlined the risk these weapons add to nuclear strategic stability. As has been broadly argued, nuclear cruise missiles weaken deterrence, risk lowering nuclear use thresholds and damage non-proliferation.³² Additionally, China does not yet have nuclear-armed cruise missiles; a combination of US SLCM-N acquisition and proliferation of US TLAM to Australia may lead to a reassessment in Beijing. Action by the US to lead on removing nuclear armed cruise missiles from their arsenal would both reduce this risk and make possible the use of conventional cruise missiles in a conventional conflict.

A second and related problem with the proposed TLAM transfer is that it would clearly undermine the MTCR, which restricts the export of missiles and UAVs that have a range greater than 300 km, whether they are armed with conventional or nuclear warheads. These export control arrangements were set up to establish norms that would help prevent a destabilising arms race, but the guidelines have been eroded on several occasions, most egregiously by China, and more recently by the US in the export of sophisticated UAVs³³ The export of INF-range TLAM to Australia would further erode the regime, reducing the strength of Australian and US influence in maintaining the MTCR elsewhere, with dangerous consequences for an escalating Asia-Pacific arms race.³⁴

32 Christine Parthemore & John Gower, "DPRK's Wake Up call on Cruise Missile Risks", The Hill, 27 September 2021, <https://thehill.com/opinion/national-security/574055-north-koreas-wake-up-call-on-cruise-missile-risks>

33 Daryl G. Kimball, "U.S. Reinterprets MTCR Rules," Arms Control Association, September 2020, <https://www.armscontrol.org/act/2020-09/news/us-reinterprets-mtcr-rules>

34 Tanya Ogilvie-White, Briefing to the Australian Senate Foreign Affairs, Defence and Trade References Committee, 7 July 2021; Anastasia Kapetas, "Limiting the nuclear-proliferation blowback from the AUKUS submarine deal," The Strategist, 21 September 2021, <https://www.aspistrategist.org.au/limiting-the-nuclear-proliferation-blowback-from-the-aukus-submarine-deal/>

(LACM) Land Attack Cruise Missile Proliferation							
Model	Origin	Year of Deploy-ment	Exports	Range (KM)	Engine Type	Speed (March)	Warhead Type
AGM-158 Jassmer	United states	2009	Australia Finland, Poland	1000	Turbofan	0.8	Conventional
RGM 109 UGM-109 Tomaha- wk Block IV	United states	2006	UK Australia (planned)	1600	Turbofan	0.7	Conventional
3M 14 kalibr	Russia	2015	-	2500	Turbofan	0.7	Conventional
SOM B2	Turkey	2021	South Korea, Spain	250	Turbojet	0.9	Conventional
Taurus KEPD 350	Germany /Sweden	2005	South Korea, Spain	500	Turbojet	0.9	Conventional
DH-10	China	2006	-	2000	Turbofan	?	Conventional (future nuclear potential)
Y J-63	China	2011	-	200	Turbojet	?	Conventional (future nuclear potential)
Hsiung Feng IIE	Taiwan	2011	-	600- 1200	Turbojet	0.8	Conventional
Babur (Hatf 7)	Pakistan	2010	-	350- 700	Turbojet	?	Nuclear Conventional
Hyunmoo 3C	South Korea	2012	-	1500	Turbojet	1.2	Conventional
PJ 10, BrahMos	India Russia	2006	Vietnam	-	Ramjet	2.0-2.8	Conventional

Table 2: LACM proliferation

Section 5.

RECOMMENDATIONS FOR RISK MITIGATION

Biden's insistence that the Australian submarine deal is a "one-off", and Morrison's insistence that Canberra has "no plans" to develop nuclear weapons are welcome statements but the AUKUS partners will need to do much more to limit the unintended damage to the non-proliferation regime. Outside the nuclear material proliferation risks, AUKUS further exacerbates risks of dual-use cruise missiles in the region. Some mitigations are discussed below:

1. Highlight Australia's domestic legislation

A priority for AUKUS partners should be to highlight Australia's domestic legislation, which prohibits both the development of nuclear weapons and the pursuit of nuclear energy, and to re-emphasise Australia's non-proliferation credentials, which have been stellar. This will help reinforce the point that Australia is an unlikely candidate for nuclear breakout, and this will not change while political and legal constraints remain in place. These include not only Australia's Safeguards Act but also its environmental law, which prevents Australia developing nuclear fuel cycle facilities and closes off a key proliferation pathway. Although defence projects can be exempted under federal environmental law, in practice efforts to acquire an exemption for nuclear-related projects would likely trigger strong public opposition that would be costly for any government that tried to push it through. Briefings on these and other constraints that might not be well known beyond Australia's shores could help boost confidence in Australia's on-going commitment to nuclear non-proliferation, especially during the 18-month consultation period when the detailed submarine plan is expected to be hammered out. In the same vein, it would be an advantage to increase transparency around Australia's work on the development of laser enrichment technology (another potential proliferation pathway), which began in the 1990s at Australia's research reactor and continues today.

The Australian Safeguards and Non-proliferation Office has stated it is "satisfied that this program does not involve associated technology as defined by the Safeguards Act" and it would be helpful if other countries could be reassured of this.

A priority for AUKUS partners should be to highlight Australia's domestic legislation, which prohibits both the development of nuclear weapons and the pursuit of nuclear energy, and to re-emphasise Australia's non-proliferation credentials.

2. Optimise reactor core design

The biggest nuclear proliferation challenge in the AUKUS deal relates to the nuclear fuel that would be used to power the submarines, and questions around this will need to be answered as soon as possible. The use of HEU without lifetime cores would present the greatest proliferation challenge, because the need for refuelling would mean Australia would have to develop HEU or stockpile imported HEU cores, with diversion potential and related security risks and uncertainties. For this reason, Prime Minister Scott Morrison and others have indicated Australia will probably use lifetime reactor cores – the use of which would also make practical sense given Australia does not have the facilities to produce, stockpile or dispose of fissile material, the construction of which is currently prohibited under Australian federal law. Safeguards expert John Carlson envisages that “the reactor would be supplied already fuelled and at the end of the submarine’s operating life...the submarine with its reactor would be returned to the supplier” – an arrangement that might also be more acceptable to the Australian public, which is wary of nuclear technology.³⁵ This arrangement would certainly be necessary if the US or UK was to supply Australia’s reactor cores, given the SSNs of both states are powered by weapons-grade HEU. However, this would likely require legislative changes in the supplier state/s, and would face opposition from many in the non-proliferation expert community because the use of lifetime cores would not completely remove nuclear proliferation and nuclear security risks.

An alternative core strategy, which has been put forward separately by James Acton at Carnegie³⁶ and US fissile material experts George Moore and Frank von Hippel, would be to consider LEU-cored submarines.³⁷ An LEU core solution would solve the risk of HEU transfer to a weapons programme, but the consequent need to refuel during the platform life would require enrichment and handling facilities and impose nuclear processes and safety schemes that might not be acceptable to the Australian public. It would also present the nuclear non-proliferation regime with a different problem: the infrastructure that would be necessary to refuel LEU submarines in Australia would make it easier for states like Brazil, Iran (and potentially South Korea and others) to claim they need enrichment programmes for national security reasons.

35 John Carlson, “AUKUS Nuclear-Powered Submarine Deal – Non-proliferation Aspects,” APLN Commentaries, 17 September 2021, <https://www.apln.network/analysis/commentaries/aukus-nuclear-powered-submarine-deal-non-proliferation-aspects>

36 James Acton, “Why AUKUS Why the AUKUS Submarine Deal Is Bad for Nonproliferation—And What to Do About It,” CEIP, 21 September 2021, <https://carnegieendowment.org/2021/09/21/why-aukus-submarine-deal-is-bad-for-nonproliferation-and-what-to-do-about-it-pub-85399>

37 George M. Moore and Frank N. von Hippel, “Nuclear subs in Australia will challenge the nonproliferation regime, and China,” The Hill, 22 September 2021, <https://thehill.com/opinion/international/573441-nuclear-subs-down-under-will-challenge-the-nonproliferation-regime-and>

The problem therefore would swiftly centre on the spread of enrichment capability, rather than the use of the LEU fuel per se.³⁸

3. Work out new IAEA monitoring arrangements as soon as possible

One critical challenge that the AUKUS partners have to wrestle with relates to how the fissile material in use in Australia's nuclear-powered submarine programme will be safeguarded. This is an extremely complex legal and technical issue that will need to be worked out as soon as possible if the submarine programme is to go ahead.

The complication is over how to monitor material that is in non-proscribed, non-peaceful³⁹ use (e.g. naval propulsion). Under the NPT, NNWS are prohibited from using any nuclear material which they hold or control for nuclear weapons or other nuclear explosive devices. To verify observance of this prohibition, all nuclear material NNWS hold or control in peaceful use must be under IAEA safeguards. But arrangements for monitoring nuclear material while it is in use in naval reactors - which is allowable as a non-proscribed, non-peaceful use - are not clear from the Treaty text. While processes like enrichment, fabrication, storage, reprocessing, and disposal must be under full safeguards in all NNWS, this does not apply to nuclear material in a naval reactor while it is powering a submarine - in this case, full safeguards are suspended.

Special arrangements will be needed so the IAEA can still determine whether the prohibition against diversion to nuclear weapons is being met. But what this means in practice has yet to be determined.

Special arrangements will be needed so the IAEA can still determine whether the prohibition against diversion to nuclear weapons is being met. But what this means in practice has yet to be determined. If, as proposed, the Australian submarines use lifetime cores, it is easier to envisage how monitoring arrangements would work because the reactors could be supplied already fuelled, would not require refuelling, and would be built into the submarines so the fuel can only be accessed by cutting into the hull. In this case, the IAEA would only need to be satisfied that Australia has not removed the fuel, which could be achieved by a) periodic visual observation of the submarines (in that if the submarine is operating, the hull must be intact), and b) regular checks on any facilities where cutting into the hull and removing radioactive fuel could be possible (although Australia is not expected to have any such facilities).

38 A further problem with the LEU option is that it ignores the genesis of AUKUS, the submarine component of which was driven by reactor power density requirements set by range and endurance of operations over a number of years.

39 As "peaceful" is defined under the NPT.

Monitoring arrangements would be more complicated for a state that is producing its own fuel (i.e. is enriching) or storing and loading imported fuel. Enrichment and refuelling could both be covered by safeguards, but these operations present a diversion risk that could become a problem if NNWS with nuclear fuel cycle programmes achieve their SSN ambitions.

4. Urgently address dual capable cruise missile dangers

As argued in Part 3, dual-capable cruise missiles are uniquely destabilising. Their use towards or near a nuclear-armed state is the most likely cause of nuclear escalation from misinterpretation. In the pursuit of strategic stability there is a strong need to work towards taking current nuclear-armed cruise missile systems out of service, and prevent their further development and proliferation. If for no other reason, the presence of a dual capability renders impotent the conventional cruise missiles against likely adversaries in the region precisely because of this miscalculation risk. Australia and the UK (both fielding conventional TLAM only) should persuade the US not to continue the previous administration's intent to develop the SLCM-N (a successor to the decommissioned TLAM-N). This could then be addressed and tackled in a series of new arms control and risk reduction initiatives which could start in the Asia-Pacific but would need to be enacted in parallel with similar stability concerns in the Euro-Atlantic region caused by the prevalence and proliferation of this class of weapon. The US championing this from an Asia-Pacific start point would greatly enhance the positives of AUKUS.

First steps should include a voluntary moratorium on the deployment of new nuclear cruise missile capabilities and a commitment to engage in bilateral and regional dialogue on decommissioning current types in service. By pushing forward with this initiative, AUKUS partners would help demonstrate their commitment to the security of all Asia-Pacific peoples – an essential step and a shared responsibility that would help dissipate some of the fear and anger generated by the abrupt and poorly-handled AUKUS announcement. The UK and US both have important arms control experience to bring to these activities, and the opportunity to get China on board with this urgent priority (in advance of any Chinese decision to field equivalent capabilities - which they have so far resisted), should be seized.

5. Repair Damage to and Recommit to the MTCR

AUKUS partners should commit to upholding the MTCR, including by pledging not to further erode export controls on the most sensitive, Category I technologies. They also need to commit to continue updating and expanding the list of items on the Equipment, Software and Technology Annex.

Trade controls are an imperfect but crucial means of curbing missile proliferation - the more they are eroded by current MTCR members (including Australia, which in the past has been an important MTCR champion), the higher the lid will lift on a dangerous and destabilising missile arms race in the Asia-Pacific and ultimately elsewhere.

Trade controls are an imperfect but crucial means of curbing missile proliferation - the more they are eroded by current MTCR members (including Australia, which in the past has been an important MTCR champion), the higher the lid will lift on a dangerous and destabilising missile arms race in the Asia-Pacific and ultimately elsewhere. Bringing China, Pakistan, and other emerging missile powers into the MTCR would help reverse this trend, but this will not be a quick or easy task, and if current erosion continues, the regime will hollow out before this can be achieved. An immediate priority should therefore be to improve awareness of the MTCR among defence officials and political leaders, as well as the industrial and education sectors, with discussion of missile control challenges also prioritised in the UN First Committee and on the sidelines of the NPT.

6. Reinvigorate diplomacy at bilateral, regional and sub-regional levels

AUKUS has understandably unnerved states across the Asia-Pacific, above all because they fear the consequences of its sudden and clumsy injection of unabashed power politics into the region. The scale and strength of the negative response could well have taken AUKUS partners by surprise. With the exception of Quad partners India and Japan, and Southeast Asian countries the Philippines and Singapore, criticism has been stinging.⁴⁰ To address these genuine concerns, AUKUS partners will have their work cut out. In Northeast Asia, the priority should be to resume the stalled DPRK nuclear negotiations and work inclusively with states in the region to identify and help implement the necessary elements of a Northeast Asian security architecture. Among the AUKUS partners, the US will need to lead on this, but both Australia and the UK also have important roles to play, especially in helping envision and support new dialogue initiatives that engage all the major powers, including China, in risk reduction and confidence-building. In Southeast Asia, most of the work will fall to Australia to demonstrate that the Morrison government is not tone deaf; that ASEAN security frameworks, including the ASEAN Regional Forum and East Asia Summit, remain important forums for regional security dialogue and that the Bangkok Treaty must be respected and preserved. As a longstanding ASEAN dialogue partner, the US can reinforce these efforts by listening and responding to ASEAN concerns alongside the UK, which is ASEAN's newest dialogue partner (a privilege granted in August 2021). Australia will also need to take the lead in reassuring neighbours in the South Pacific,

⁴⁰ Susannah Patton, "Australia must take Southeast Asian reactions to AUKUS seriously," *The Strategist*, 22 September 2021, <https://www.aspistrategist.org.au/australia-must-take-southeast-asian-reactions-to-aucus-seriously/>

including by pledging its commitment to uphold the Rarotonga Treaty, the creation of which Canberra actively championed. Across the wider region, safety and security concerns will need to be addressed, not just through reassuring statements, but in bilateral and regional consultations over missile and submarine anxieties (including the movement of nuclear-powered vessels through territorial waters) and more general concerns over arms racing and US-China strategic competition.⁴¹

7. Rescue the NPT RevCon from inadvertent AUKUS fallout

The 2020 NPT RevCon, postponed by the COVID pandemic, has been under stress from a combination of increased nuclear weapon rhetoric, missile tests, and new programme announcements from a number of the recognised and de-facto NWS. It is also increasingly divided over how to make progress on nuclear disarmament, with many NNWS now also states-parties to the TPNW, which delegitimizes the continued possession of nuclear weapons. The combination of these stresses demands proactive diplomacy from the P5, including a willingness to find common ground among themselves, as well as sufficient engagement from as many of the NNWS as possible to achieve a progressive consensus outcome.

It is not in the interests of any party to stall NPT progress, and even less so allow it to unravel. AUKUS has delivered a double blow in the lead up to the delayed RevCon, exacerbating an already extremely challenging situation.

AUKUS has therefore delivered a double blow in the lead up to the delayed RevCon, exacerbating an already extremely challenging situation. Firstly, Australia's partners in the NPDI will see the AUKUS submarine deal as an Australian volte face on non-proliferation principles. Secondly, depending on the length and depth of the French rift with the AUKUS partners, P5 cohesion will be even harder to achieve.

It is not in the interests of any party to stall NPT progress, and even less so allow it to unravel. A strand of the post announcement activity by the AUKUS partners, and also other key players, must be to ensure that AUKUS objectives are pursued with the interests of the NPT at heart. The above mitigation suggestions have been developed with this in mind, and could help square the challenging circle between AUKUS objectives and NPT obligations. An early joint statement adding detail and substance to the AUKUS pledge that "Australia remains committed to fulfilling all of its obligations as a non-nuclear weapons state, including with the International Atomic Energy Agency", would be a positive step, as would briefings and consultations within the P5, NPDI and with the RevCon President on how to reduce the risks of the RevCon becoming derailed by AUKUS-related tensions.

41 Ramesh Thakur, "Integrating AUKUS into the Indo-Pacific," The Strategist, 28 September 2021, <https://www.aspistrategist.org.au/integrating-aukus-into-the-indo-pacific/>

Section 6.

CONCLUSION

In announcing AUKUS to the world, the Joint Leadership Statement resolved to “deepen diplomatic, security, and defense cooperation in the Indo-Pacific region, including by working with partners, to meet the challenges of the twenty-first century.” They pledged that in pursuing this goal, they would be guided by their “enduring ideals and shared commitment to the international rules-based order.” In today’s increasingly tense and uncertain strategic environment of the Asia-Pacific, this could well be a welcome development; part of a complex system of regional constraints that could help prevent any one state from gaining effective sea control over international waters.

But in centring the first declared concrete manifestation of this trilateral arrangement on a shared SSN programme for Australia, accompanied by the export of TLAM to arm the SSNs, AUKUS has opened a box of challenges to the already-stressed nuclear and missile non-proliferation regimes. In accompanying it by a poorly handled cessation of the French submarine contract and a total lack of regional consultation, it has risked splitting allies at a critical time in Asia-Pacific regional strategy. A period of listening and responding to regional concerns will need to be followed by intense diplomacy at regional and international levels, to ensure that some of the most serious unintended consequences are avoided, including further weakening the NPT and MTCR, feeding arms racing dynamics in the Asia-Pacific, sidelining or dividing ASEAN, and accelerating the emergence of a Sino-Russian alliance.



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