

## The Minefields That Could Sink SSN AUKUS

**Ramesh Thakur**

Meeting in San Diego on 13 March 2023 for a joint announcement, US President Joe Biden and British and Australian Prime Ministers (PM) Rishi Sunak and Anthony Albanese unveiled the [agreement on the way forward](#) for the new tripartite security pact AUKUS—announced as a [concept](#) back in September 2021—to equip Australia with a fleet of nuclear-powered submarines. These are labelled SSNs, to distinguish them both from diesel-electric (SSKs) and nuclear-armed ballistic missile (SSBNs) submarines. [Albanese](#) described the AUKUS submarine project as ‘the biggest single investment in Australia’s defence capability in all of our history’.

### The Deal

Australia will initially buy three Virginia class US submarines starting from 2032, with the option to buy another two later if desired. Australia will contribute towards expanded US capacity to build the subs. Meanwhile the three allies will begin work on eight next-generation Astute class British submarines, to be called AUKUS, billed as the world’s most advanced subs. Based on the British design and equipped with cutting-edge US submarine technologies, weapons and combat systems, the ships will be built in Adelaide, with the first delivery to the Royal Australian Navy (RAN) [by 2042 and the last by 2055](#).

In the meantime, Britain and the US will rotate their nuclear-powered submarines into port in Perth from 2027. This three-lane ‘[optimal pathway](#)’ addresses the capability gap in the original AUKUS announced in 2021 that envisaged a long lead time before the first subs entered into service in 2038.

This is a substantial upgrade from Australia's existing six Collins class diesel-electric submarines. Australia's three-ocean (Antarctic, Indian and Pacific) maritime zone of strategic interest runs from Antarctica in the south to the Asian mainland in the north. In this vast maritime space, nuclear submarines will give Australia greater reach, speed, manoeuvrability, longer continuous underwater at sea deployment, stealth and punch with state-of-the-art missiles, cyber and artificial intelligence (AI) technology. The new nuclear subs will not need to surface, nor to come back to home port for refuelling (unless they run short of food!). The Virginia and AUKUS SSNs will be as quiet electronically as the diesel submarines, although this claim is disputed by some. The lifetime running ability of the nuclear cores and no requirement to build a domestic civilian nuclear industry also proved decisive.

There was an interesting comparison of conventional and nuclear-armed subs in [The Australian](#) recently by Rear Admiral (ret'd) Peter Clarke making the case for the advantages of nuclear propulsion from the point of view of the vessel's commander. He served in the Royal Navy before migrating and joining the RAN. While in British service, on different occasions he commanded both SSK and SSN submarines and wrote that, based on his experiences, the latter are markedly superior.

Biden described the naval partnership as a critical instrument, at this '[inflection point in history](#)', to stabilise the Indo-Pacific region at a time of rising tensions and the distinct possibility of a war over Taiwan. For the first time in 65 years, the US will share technology at the heart of its nuclear submarines, creating a 'nuclear stewardship' among the three allies. In contrast to all other nuclear-armed countries with nuclear-powered submarines that use low and medium-enriched uranium below 20 per cent purity, the UK-US submarines use 90-95 per cent highly enriched uranium that is full weapon-grade. However, Biden took pains to emphasise that the subs will not carry any nuclear weapons.

The most consequential aspect of AUKUS is it embeds the UK and the US firmly into Australia's Indo-Pacific strategy. For the first time in history and reflecting the changed post-Ukraine invasion strategic perceptions of interlinkages between events in the two regions, three fleets of nuclear-powered submarines will work together across the Indian and Pacific oceans. The US is 'the glue holding this new partnership together', said National Security Adviser [Jake Sullivan](#). A de facto linkage has been created between NATO and AUKUS. This will effectively reverse the strategic parting of ways during the Second World War when Australia switched from the UK to the US as its great and powerful guarantor-ally.

AUKUS thus integrates and strengthens Australia's historic alliances. As a collateral benefit, the project amounts to a risk diversification strategy for Australia, spreading risk between the three allies. Should it fall apart, all three will own the failure.

Safety concerns are overblown. The first nuclear-powered submarine *USN Nautilus* was commissioned in 1955. According to the White House '[Fact Sheet](#)' issued at the time of the San Diego announcement:

For over 60 years, the United Kingdom and United States have operated more than 500 naval nuclear reactors that have collectively travelled more than 150 million miles – the equivalent of over 300 trips to the moon and back – without incident or adverse effect on human health or the quality of the environment.

All that said, because of the complexity and timescale of the multifaceted project to fast-track Australia into a formidable naval power in the region, concealed minefields could yet sink the project and lead to finger-pointing recriminations. The discussion that follows outlines several but not necessarily all. In my judgment, the most critical are the first six. The remaining two about the proliferation risks and compromised sovereignty are more debating points rather than genuine concerns. However, there is also always the reality of '[unknown unknowns](#)', in former US Defense Secretary Donald Rumsfeld's wonderful phrase from 2002.

### China Threat: A Self-fulfilling Analysis?

AUKUS comes against the backdrop of unease in some sections of Australian opinion about Australia's courtship of the US alliance even at the cost of good relations with China. China's President [Xi Jinping](#) has accused the US of leading Western countries to engage in an 'all-around containment, encirclement and suppression of China'. After the announcement, Chinese [officials](#) repeated earlier [warnings](#) that the development is inconsistent with international nonproliferation obligations and will provoke an arms race in the region. Chinese experts warned that the Royal Australian Navy had become a de facto extension of the US Navy and Australia 'has officially put itself on Beijing's defence radar'.

It is indisputable that China has obstructed a genuinely impartial international investigation of the origins of Covid. When Australia called it out, Beijing retaliated by putting Australia in the trade doghouse, thereby starkly highlighting its exposure to Chinese coercion – enabled not just with China's dramatically increased economic clout, but its [incremental buildup of military outposts](#) through the strategic but contested South China chain of islets. This has changed both the geography and the balance of power in Australia's north, sharply degrading its strategic environment.

Nonetheless, there is a real risk of creating a self-fulfilling enmity with China. Its [foreign ministry spokesman Zhao Lijian](#) said AUKUS 'greatly undermines regional peace and stability, aggravates (the) arms race, and hurts international non-proliferation efforts'. China's economic dynamism, industrial capacity and growing technological sophistication are remarkable. Its 'onwards and upwards' [trajectory](#) is even more telling when calculating effective military strength in any future armed conflict. It has rapidly become self-reliant in defence production, often based on borrowed, adapted, or purloined foreign technology. It is developing advanced capabilities in hypersonic missiles, warships, cyberweapons, and space and information domain assets that have steadily cut the margins of US naval superiority. And the need for secure lines of communication to its expanding, overseas, import-export markets makes it imperative that it becomes a modern maritime power.

Granted, China's navy is not battle-tested but neither has the US navy seen combat operations since 1945. The US is still the single most powerful and influential actor, but US

primacy—military, economic, cultural—is waning. Global institutions will serve its power and purposes less and less, producing a decline in the American order. Allies cannot be confident of the will and capacity of the US to continue as the anchor of Indo-Pacific security settings. AUKUS is both a strategic bet on a fundamental reorientation of US attention and resources to the Indo-Pacific and a step-change in Australia’s military capability that augments the other two allies’ remote-controlled military footprints in this region.

However, what if the stark reality of an AUKUS with nuclear-propelled teeth accelerates China’s timetable for reunifying Taiwan, by peaceful means if possible but by force if necessary? If indeed Beijing has decided on the course, the timing is likely to be influenced by the desire to act before the AUKUS vision of greatly strengthened operational capabilities is achieved.

Or even worse, what if the secret US calculation is to [goad China into war](#) in an attempt to take action over Taiwan, before their superiority outpaces US and allied capabilities, and AUKUS is a means to that end? A war that China does not want and will likely lose? For, as [Alex Lo](#) writes in his *South China Morning Post* column, ‘in an actual hot war’ between China and the US, the latter is more of ‘an existential threat’ to China than vice versa. China would ‘face the very real possibility of physical annihilation’.

Australia faces a stark and an increasingly binary choice. It can embrace the US alliance ever more tightly to the point where it risks being suffocated by it and effectively surrenders control over if and when to go to war to Washington. In that case, Australia could find itself at the epicentre of a Sino-US war as a result of decisions over which it had little influence. Or it can risk downgrading the alliance to the point where isolationist sentiment grows in the US and it withdraws from its role as the de facto sheriff of the Indo-Pacific. This may not result in an outright Chinese invasion but could Canberra then realistically resist becoming a de facto vassal state?

In a stinging attack on the AUKUS decision—the ‘worst international decision’ by a Labor government since conscription in World War I—former PM [Paul Keating](#) told the National Press Club on 15 March: ‘Anthony Albanese screwed into place the last shackle in the long chain the United States has laid out to contain China’. He has long maintained that the unipolar world of US hegemony is over. Countries and peoples of the region have to live with China’s growing influence in the world, and especially in Asia. Few other Asian and Pacific countries want to be forced into choosing between China and the US and most would dread the consequences for the region and the whole world of a war between the two contemporary giants. Carrying on as if only the US can have spheres of influence or a powerful military paves the way for a disastrous confrontation.

As [Adam Creighton](#), *The Australian’s* Washington correspondent, wrote recently:

Too often we accuse nations outside the US geopolitical orbit of actions we ourselves have been committing for decades. When the US talks about the importance of a “rules-based global order”, anyone who has read even a little post-WWII history should burst out laughing.

That's the main reason why the bulk of the world hasn't bought into the simplistic moral pantomime that passes for commentary on the worsening tragedy in Ukraine: Putin is Hitler, and we are "saving freedom".

## Capability Gap

The justification for the change of mind in September 2021 from the yet-to-be-designed French SSK submarines to a yet-to-be-negotiated fleet of AUKUS SSNs, was that security threats have grown at an alarming pace in the last few years, necessitating a total reset of Australia's maritime defence policy. *The Sydney Morning Herald* and *The Age* published three articles recently drawing on assessments from five national security experts (Lesley Seebeck, Mick Ryan, Alan Finkel, Lavina Lee and Peter Jennings) under the generic war-cry title '[Red Alert](#)'. Their three-part conclusion is that the overwhelming source of danger to Australia is from China; Australia faces the threat of war from China within three years; and it's not ready for it.

Reacting to the series, one Chinese-Australian, [Wanning Sun](#), warned that the Australian media was 'sleepwalking into war propaganda'. Another, [Teow Loon Ti](#), wrote: 'It is now a contest between Joseph Goebbels' "If you say a lie frequently enough, people will believe it" and "The boy who cried wolf" so often that people will stop believing him'.

How can we afford nine years to get the first of the new SSN capability in such a rapidly changing military-technological environment? The US strategic community seems to believe that the greatest threat of an invasion of Taiwan by China will come in the 2025–28 period. On 27 January, *The Washington Post* reported that [General Michael A. Minihan](#), head of the US Air Mobility Command, sent out a memo to troops under his command that the US could be at war with China within two years: 'My gut tells me we will fight in 2025'.

The extended time-lag between promise, commencement and complete delivery of the subs is very concerning. The first Virginia SSN is not scheduled to be delivered until 2032; the first AUKUS SSN, not until 2042. The equation does not compute. China's proven ability to fast-track defence acquisitions means it could embark on a major naval upgrade as a riposte to AUKUS.

To put that in some historical perspective, the scheduled timeframe of 2023 (the deal is done) to FY 2055/56 (the last AUKUS SSN is delivered to the RAN) equates to 1918–51, during which:

- Russia became the USSR;
- Spanish Flu infected 500 million people (one-third of the world's population) and killed between [25](#) and [50](#) million;
- The Great Depression devastated economies and ruined lives;
- The Second World War was fought in two separate theatres in the Atlantic and the Pacific;
- The world's first atomic bombs were dropped on Hiroshima and Nagasaki;
- The British Empire ended as prelude to decolonisation;
- Germany in Europe and Japan in the Pacific were defeated;

- The United Nations was created;
- India was partitioned and became independent;
- Indonesia gained independence;
- The Cold War settled into a Long Peace that lasted for decades;
- The People's Republic of China came into being;
- The Korean War was fought.

## Bankrupting the Nation in Effort to Secure It

Australia will become the country with the world's smallest population to own and operate an SSN fleet. Considering that even Britain and France struggle with the costs of their nuclear fleets, it is sobering to realise that Australia's costs per capita to acquire and maintain the small fleet of SSN vessels will be significantly higher.

Australia will spend an eye-watering AUD 368bn on its new submarine deal. According to one calculation by [Percy Allan](#), former Secretary, NSW Treasury, the federal government will be required to find, through a mix of expenditure cuts and additional taxes and levies, an extra \$3.8-5.2bn per year from fiscal years 2027/28 to 2032/33, and \$4.8-7.6bn per year from 2033/34 to 2055/56. The Morrison government spent like the proverbial drunken sailor on Covid relief measures, shutting down swathes of economic activity, on the one hand, and compensating businesses and people affected by the forced closures, on the other. So, the fiscal environment is already very challenging. The identity crisis for Labor is the trade-off required to reallocate public resources from 'bread and butter' to 'guns and subs'. The fast-growing areas of government expenditure are disability and aged pensions, and health care. Or, to switch to a different food metaphor, can it have its bread-and-butter cake and eat its defence cake too? On 21 March [two Labor MPs](#) from the left faction raised questions about the impact of the deal on other government services and also on national sovereignty.

Bill Greenwalt, a deputy undersecretary of defence in the George W. Bush administration, believes the cost estimates are '[probably fictional](#)' and predicts a much higher final cost, a delayed timetable and the risk of the submarines being obsolete on arrival. 'The history of large weapons acquisition program is that they end up costing much more and are usually not delivered on time', he said, noting that US submarine production had averaged only 1.2 vessels per year against the Pentagon target of two.

The logical tension between operating nuclear-fuelled ships, while eschewing nuclear power to ensure energy security within the broader goal of shifting away from fossil fuels to reduce emissions, is also not sustainable indefinitely.

The cost of the submarines purchase will greatly worsen the imbalance between money spent on defence and diplomacy. The Department of Foreign Affairs and Trade has been downsized quite considerably in the last two to three decades. Yet the country's diplomacy will have to scale up to reflect Australia's enhanced role in regional and global security.

## Costs and Complexities of Two Different Classes of SSNs

SSN-AUKUS will be of British design, with significant US technologies and components, and made in Australia. What could possibly go wrong? This should be a piece of cake. Just ignore the nattering nabobs of negativism who dare to ask which major defence acquisitions project has delivered on time and within budget.

Writing for the American Enterprise Institute, Zack Cooper, who served in the Defense Department and on the National Security Council in 2005–08 in the George W. Bush administration, criticised the decision to split the SSN fleet between the US Virginia and UK Astute class submarines a '[Frankenstein approach](#)'. He makes a convincing case. Operating just one class would be complex enough for a country with no previous experience with SSNs. Operating two entirely different classes adds significantly to the complexity and cost, especially with so few subs in total.

The reasons for the schizophrenic approach are the timeline and domestic imperatives. SSN-AUKUS will not commence rolling off the production line until the 2040s. The existing Collins class SSKs must be retired well before that. Buying 3-5 Virginia SSNs fills in the capability gap. So why not go all the way with the Virginias? Because industrial policy interferes with defence acquisition decisions. The original French deal had promised substantial construction contracts to the Adelaide shipyards in South Australia and, especially with the \$358bn total project cost, it was politically impossible for the Albanese government to abandon the goal of jobs for Australians.

## Technological Obsolescence of Submarines

Submarines themselves could become obsolete in that timeframe if advances in detection technology neutralise their only real advantage of stealth. ANU scientists in ocean, nuclear and materials sciences, AI and autonomous drones, concluded that sometime in the 2050s, the oceans will become 'transparent'. Submarines will lose their stealth and consequently '[the submarine era will likely come to an end](#)'. Done well before the AUKUS announcement, this was not a politically tainted study. Greenwalt too says that: 'Ubiquitous surveillance, deployed sensors in space, would take away their advantage, and the ocean becomes less opaque; it's a huge potential risks; are these going to be the battleships of the 21st century?'

While this is an important caution against irrational exuberance over the AUKUS submarines, it also likely under-estimates potential technological developments by way of countermeasures. Investment in pillar 2 of AUKUS, with the focus on advanced technologies, is no less vital than acquiring the SSNs. [Malcolm Davis](#) points out that undersea warfare capabilities too will advance exponentially in the decades ahead during which SSN-AUKUS will be in service, including uncrewed underwater vehicles. This is where the little noticed part of the announcement is actually quite crucial, on long-term plans to cooperate on quantum computing, AI, cyberwarfare and missiles.



## Domestic Politics in US and Australia

Some years hence, with a different government and PM, if doubts about the cost-effectiveness and utility of the nuclear submarines grow and as budgetary pressures mount, Australia could conceivably still cancel the SSK-AUKUS phase and just order more Virginias in their stead to add to the five in its fleet. With the infrastructure and supply chains already in place, it would be simpler and much more cost-efficient to expand the US production line to build a few extra vessels.

Cooper also points out that for its part, the US might not have the slack in submarines in a critical decade. Although the Australian subs may end up deploying alongside US vessels, the decision will be for Canberra to make and Washington cannot take it for granted. And indeed, on 19 March, Australian Defence Minister Richard Marles confirmed that a commitment to help the US in a conflict over Taiwan had [neither been sought nor given](#). This could add to pressures within domestic US presidential and congressional politics to rethink the whole agreement with a different administration and a resurgence of America First sentiment.

Another potentially highly charged and contentious aspect of the March announcement relates to the disposal of the spent fuel and other waste from the submarines. Australia has [committed](#) to managing all radioactive waste generated through the submarine programs in Australia, in accordance with its nuclear non-proliferation and other international obligations and commitments. The UK and US will assist in developing this capability.

It will be interesting to see how the federal government persuades one of the state governments to provide an appropriate site, and where; and how the federal and state governments then manage public opposition which will no doubt be robust and vocal. Already on 20 March, West Australian Labor MP [Josh Wilson](#) raised concerns about radioactive waste storage and also proliferation risks from the precedent set by AUKUS. In turn, this indicates the vital necessity of sustaining the bipartisan support for the project since the stewardship over several decades will be in the hands of successive governments from both major parties. Will they all prove to be up to eschewing partisan bickering in the search for quick political and electoral advantage?

## Proliferation Risks

Another concern is the proliferation potential of nuclear weapon states assisting a non-nuclear country to acquire nuclear-powered submarines. Critics of the deal are worried less about Australia per se than the precedent this sets for opening a '[Pandora's Box of proliferation](#)' for other more problematical countries. That's not a trivial concern.

The [NPT permits non-explosive military uses of nuclear material](#), subject to standard safeguards measures that are suspended while the material is in military use but reapply as soon as it is returned to civilian use. But in this case, the transfer is from military use by one country directly for military use by another, and for the return of the nuclear cores to the original country after their 30-year life cycle has been completed. Australia, with the full



weight of British and US diplomatic support but against fierce Chinese opposition, will seek an arrangement with the IAEA to stay NPT-compliant.

Nevertheless, the nuclearisation of Australia's navy could create ripples of unease in neighbouring Southeast Asian countries and spark a regional race for nuclear naval propulsion. The extended time horizon gives a wide open window of opportunity to countries like Indonesia, Japan, South Korea and Taiwan to work through the implications of Australia's upgraded naval defence capability and ponder the possibilities for their own security needs against the foreseeable threats in that timeframe.

### **Diluted Sovereignty**

Among major political players, former PM [Keating has led the attacks against AUKUS](#), on two grounds. On the one hand, he says, the deal compromises Australian sovereignty by severely circumscribing independence of action in deciding when, why and against whom to go to war. The decision will essentially be made by the US and Australia will be dragged into it willy-nilly. This will happen, explains former Foreign Minister [Bob Carr](#), because 'The enmeshment of our submarine defences with those of the US sent the message we are signing up to a war over Taiwan'.

Second, Keating believes that in any armed conflict in the Pacific, China has grown powerful enough to prevail against the US and therefore Australia is casting its lot with the losing side, which is always strategically foolish. [He commented back in 2016](#) that as a non-Asian power, the US cannot remain 'the strategic guarantor' of Asia in perpetuity. It remains 'important to the peace and good order of East Asia...[but] as a balancing and conciliating power'.

In reality, the AUKUS allies have entered into an arrangement of pooled sovereignty. Both in granting privileged access to sensitive nuclear technology for the first time in 65 years (the last was to the UK in 1958), and also in agreeing uniquely to give 3 – 5 Virginia class submarines to Australia, the US too has compromised with its own absolute sovereignty.

Ministers and officials insist Australia will have complete sovereign command over the submarines. They will be Australian submarines, operated by Australian crews, commanded by a RAN officer and taking orders from the Government of Australia. The decision to go to war will still be made in Canberra. The expressions of concern ignore the historical reality of how just often Australia has been at the forefront, enthusiastically signing up to be part of yet another coalition of the willing.

## The Author

**Ramesh Thakur**, a former UN assistant secretary-general, is emeritus professor at the Australian National University, Senior Research Fellow at the Toda Peace Institute, and Fellow of the Australian Institute of International Affairs. He is the editor of [The nuclear ban treaty: a transformational reframing of the global nuclear order](#).

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### Contact Us

Toda Peace Institute  
Samon Eleven Bldg. 5<sup>th</sup> Floor  
3-1 Samon-cho, Shinjuku-ku, Tokyo 160-0017, Japan  
Email: [contact@toda.org](mailto:contact@toda.org)

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