COMMENTARY

Australian Submarine Force

A Checkered Past and an Uncertain Future

Commodore Anil Jai Singh, Indian Navy, retired

The Australian government's recent decision to build eight nuclear attack submarines (SSN) with support from the United States and the United Kingdom and shelve the ongoing program for 12 indigenously built *Attack*-class conventional diesel-electric submarines in collaboration with Naval Group of France has not really come as a surprise from a geopolitical perspective. However, to cancel an ongoing contract on which considerable investment has already been made has raised more than a few eyebrows among those familiar with the submarine world.

Australia is an experienced submarine operating country, though with a checkered past. The Royal Australian Navy's (RAN) first two submarines were commissioned in 1914 and sank in World War I. Acquisitions after that were mostly old submarines from the Royal Navy that had a limited operational life, and there were none during World War II. The submarine arm was revived with the purchase of four *Oberon*-class submarines from the United Kingdom, the first of which, the HMAS *Oxley*, was commissioned in March 1967. The remaining three followed in 1968 and 1969. The *Oberon*-class submarines were among the most modern diesel-electric submarines at the time and laid a strong foundation for the Australian submarine force. Interestingly, India too wanted *Oberon*-class submarines from the United Kingdom a few years earlier and had even sent its crews to train at HMS Dolphin, the British submarine training establishment, but Britain was unwilling, which led New Delhi to turn to the Soviet Union. India commissioned its first submarine, INS *Kalvari*, a Soviet *Foxtrot*-class submarine on 8 December 1967. RAN commissioned two more *Oberon*-class submarines in the late 1970s and has maintained a submarine force level of six submarines since then. In the 1980s, Australia decided to go in for the indigenous construction of six submarines to replace the aging Oberons and collaborated with Kockums, the Swedish submarine manufacturer, for the indigenous design (based on the Type 471) and construction of six *Collins*-class submarines, which began in 1987. These state-of-the-art submarines entered service between 1993 and 2003 and suffered from some very serious teething problems and major manning issues that severely restricted their operational availability for more than a decade until these issues were resolved at considerable cost. With their problems behind them, these sub-

marines have been performing to expectations since the early years of the past decade. They will probably be upgraded in due course and will continue in service until at least the mid-2030s.

In 2016, Australia signed an intergovernmental agreement (IGA) with France for the indigenous construction of 12 conventional diesel-electric submarines. This IGA had followed an intense competition for the program in which the Japanese *Soryu*-class submarines were the frontrunner in the initial stages but did not progress for a variety of reasons. This left thyssenkrupp Marine Systems (tkMS) of Germany and Naval Group of France in the fray. Finally, based on the requirements, Canberra considered NG France the better partner and inked an AUSD 50 billion contract in February 2019; this was the largest-ever defense contract signed the largest ever for the RAN. Naval Group France offered a concept design called the Shortfin Barracuda, meant to be a technologically future-ready diesel-electric version of the French *Barracuda*-class SSN. To most knowledgeable submarine observers and submariners, this seemed like an incredible leap of faith by Australia in a design that had to be developed from scratch.

It was not long before contentious issues began to emerge, and the cost began to escalate, with the last estimate being more than AUSD 90 billion—and the construction had not even begun. The Australian parliament raised questions, and scathing commentaries began appearing in the press. The clamor for cancellation of the contract began to get louder, and, as one respected Australian journalist questioned, the rationale of "throwing good money after bad" and the justification that cancellation would lead to job losses in South Australia was sounding weak. Job retention is, in any case, a very weak justification when discussing a critical national security capability. In fact, compromising national security imperatives to suit political interests either for saving jobs or handholding industry is probably the worst kind of justification there is and rarely achieves the intended result.

France is understandably peeved at this decision. President Emmanuel Macron has taken the unprecedented step of withdrawing his ambassadors from the United States and Australia. This may perhaps seem an extreme and immature reaction, but the French government is so heavily invested in promoting the export of military hardware that this is a significant factor in determining the depth of its strategic relationship with a country—as we in India know all too well. It is also not unusual for senior French ministers and occasionally even the presidents to actively pitch for their defense industry with foreign governments.

The Australia–United Kingdom–United States (AUKUS) trilateral has taken the world by surprise. Just recently, France and Australia had committed to a deeper engagement and were keen to include India in an informal trilateral engagement. Unknown to France though, the AUKUS trilateral would obviously

also have been in the making at the same time. Hence, while discussions with the French on strengthening the Australia– France bilateral relationship were on, so must have been the discussions on the cancellation of the submarine contract within Australia. Is it any wonder then that France is accusing Australia of stabbing it in the back and has withdrawn its ambassadors from Australia and the United States?

From a geopolitical perspective, the hardening of Canberra's position with China is in marked contrast to Australia's stance five years ago when, other than the United States, the other three members of the Quad were openly reluctant to mention China, which was one of the main issues of divergence in the Quad. This has changed in the past couple of years, with even Japan and to a lesser extent India expressing their concern at China's belligerence, particularly in the maritime sector, which has led to many other countries articulating their own Indo-Pacific strategies toward ensuring a free and open Indo-Pacific. The participation of all four Quad navies in the Malabar Exercise over the past two years—after many years of dithering in the face of China's objections—is one example of these new convictions.

France, despite its geographical location in Europe, has a very major stake in the Indo-Pacific, with about 93 percent of its exclusive economic zone in the region. There is a permanent French naval presence in the Indian Ocean, headed by a two-star admiral, and more than 1.5 million French citizens live here. During his visit to Canberra earlier this year, President Macron outlined his vision of a new Paris–Delhi–Canberra axis, claiming it "is absolutely key for the region and our joint objectives in the Indo-Pacific region."[1]

The United Kingdom, which has been a marginal player in this region, has articulated its "tilt" to the Indo-Pacific in its *Integrated Review* as part of Prime Minister Boris Johnson's vision of "Global Britain." The deployment of Carrier Strike Group 21, led by the new aircraft carrier HMS *Queen Elizabeth* on a seven-month deployment to the Indo-Pacific, is a manifestation of that policy. London has also committed to permanently deploying two *River*-class offshore patrol vessels in the region, but the Royal Navy's ability to sustain a significant presence in the future will determine the extent of Britain's maritime engagement.

From a submarine perspective and putting aside the political dynamics of this new Anglo-Saxon trilateral, the decision to shift to a nuclear submarine capability is perhaps timely and appropriate. SSNs are the cutting edge of a country's offensive undersea warfare capability. These vessels' inherent advantages of unlimited endurance, high speed, and a lethal arsenal—comprising conventional land attack–capable cruise missiles and smart heavyweight torpedoes—enable them to not only shape the maritime battlespace to advantage but also influence the out-

comes on land. Australia's geographic location, its national security imperatives, and its future maritime strategy would suggest that there is little to argue with in its decision to operate SSNs.

One of the main reasons for Australia choosing a large conventional submarine design was its endurance requirement of 18,000 miles and 80 days at considerable distances from the mainland. Future proofing these submarines for the 2030s with advanced technologies was included in the capability definition. In fact, one wondered why Australia did not exercise an SSN option in its earlier acquisitions efforts, but the Australian government categorically ruled nuclear propulsion out of consideration, despite the advantages of endurance, range, and speed. In fact, a 2016 Australian Department of Defence Science and Technology (DST) report titled *Australia's Requirement for Submarines* stated, "The Australian Government has ruled out the nuclear option since Australia lacks the appropriate infrastructure, regulation guidelines and procedures to successfully build and operate nuclear submarines, and the time required to amass such support systems and skilled people would extend beyond the timeframe for replacement of the Collins class fleet."[2]

Fast-forwarding five years into the present, Australia is no closer to developing a nuclear ecosystem than it was in 2016 but has been convinced by the United States and the United Kingdom to shelve its current plans and go in for nuclear attack submarines. That the Australian government has agreed despite the absence of a nuclear industry in Australia, the likely penalties that the cancellation of the French program may attract, and the prohibitive cost of building and maintaining SSNs must be due to some very compelling reasons.

Nuclear-powered submarines are among the most sophisticated and complex platforms to build and operate. The cost of building, operating, and maintaining a nuclear submarine is many times that of a conventional submarine. Creating the infrastructure to operate a nuclear submarine fleet also requires experience, expertise, and a robust ecosystem ashore. Australia has none of these. It is understood that the RAN will operate eight SSNs, all of which will be built in Australia. This is indeed very ambitious, and even the most optimistic guesstimate would suggest that it will take at least 20 years—or perhaps even more—to put the first one to sea. As an illustrative example, the tender for the Royal Navy's *Astute*-class submarines was issued in 1994; the contract was signed in 1997; the boat was laid down in 2001 and was launched in 2007. Commissioning followed in 2010, and it was declared fully operational in 2014, exactly two decades later, with the cost of the first three submarines being more than 58-percent higher than first envisaged. This was despite two shipyards working on the program. The French Navy's *Barracuda*-class submarine was laid down in 1997 and was commissioned in 2020,

23 years later. The United States has been more successful with the *Virginia*-class submarine, with simultaneous construction taking place in two shipyards—though costs have spiraled. Hence, even countries that have been building nuclear-powered submarines for more than 50 years and have a robust civilian and military industrial and nuclear ecosystem take up to two decades or more to operationalize a new design. Australia has neither the military infrastructure nor the civilian nuclear ecosystem to support this program and is diving directly into the deep end instead of treading cautiously toward it. There is no doubt that having convinced Australia to go nuclear, Washington and London must have given enough reassurances to handhold Canberra through the process. A timeline of more than two decades or longer for inducting an indigenously built SSN fleet would go much beyond the expected operational life of the existing six *Collins*-class submarines and could lead to a critical capability gap.

This program will be the third such SSN program being actively progressed in the world. India and Brazil are also pursuing their own SSN programs, though the two countries have approached the undertaking in different ways. India has an active and mature civilian nuclear infrastructure and more than six decades of nuclear experience. In the military domain, its first ballistic missile submarine (SSBN), built indigenously, has already undertaken a successful deterrent patrol. The second is at an advanced stage of trials and is expected to enter service soon. At least two more SSBNs are planned/under construction. Work on the design of a six-SSN program, to be built indigenously, is in progress, and the government has approved construction. While these submarines are likely to enter service by the middle of the next decade, the Indian Navy is gaining valuable experience in understanding these complex platforms by leasing SSNs from Russia. The first one, INS *Chakra*, was leased for three years way back in 1988 and was returned in 1991. The second, a modern Akula-2 class SSN, one of the most successful Russian designs, was leased for 10 years in 2012 and has recently been returned. The lease of another Akula-2 class SSN has been negotiated, and it is likely to arrive in 2025 for a period of 10 years. Recent media reports suggest that India may lease one more Akula-2 class SSN to have two available while the indigenous build program gets underway.

Brazil is also actively pursuing the development of its submarine capability, both conventional and nuclear, in collaboration with Naval Group France and has contracted another firm in 2012 to develop the nuclear reactor for its SSNs. The contract for four *Scorpene*-class attack submarines and one SSN was signed in 2009. Known as PROSUB, this submarine development program envisages the construction of 15 conventional diesel-electric submarines and six SSNs by 2034, which is ambitious at least as far as the SSNs are concerned. The induction of the

first SSN was planned for 2025, but open-source information, as recent as June 2021, suggests that the first SSN, SNB *Álvaro Alberto*, is unlikely to be commissioned before 2034.

It will therefore be interesting to see how the Australian model develops. The modalities, which would definitely have been discussed, have not been made public. The most obvious steps would be to first impart training to selected personnel in setting up a basic support infrastructure for operating and maintaining nuclear submarines and assisting in setting it up thereafter.

Extensive training for selected personnel will have to be undertaken with the United States and United Kingdom to understand and learn the fundamentals of operating nuclear-powered submarines. Only once the Australian crews are considered capable and confident enough to operate and maintain these boats would the RAN seek to acquire any. This in itself could take three years or more. Manning of submarines has been one of the major areas of concern for the RAN. There was a stage a few years ago when, despite a force level of six, the RAN could man only three and, despite generous monetary inducement, was unable to attract volunteers to join. Presently, this crisis has been addressed but could come up afresh as new volunteers would be required in considerable numbers, with the experienced submariners required to man the current fleet in an increasingly contentious environment.

One of the options—and perhaps the most obvious one—would be for the United States to lease a *Los Angeles*-class SSN to the RAN. These are proven submarines with an impeccable safety record and impressive capability. Once a couple of RAN crews are trained and ready and the basic shore infrastructure up and running, the boat could be commissioned into the RAN. A presence of a US safety crew on board and specialist personnel ashore would be on hand the oversee the safety aspect and guide the crew in consolidating their knowledge and building their confidence. The presence of an additional Los Angeles- or *Virginia*-class submarine would also add to US-led undersea warfare capability in the western Pacific and the southern Indian Ocean. As Australia gains confidence and the ability to train the requisite numbers, the force level could be augmented with the further lease of an SSN or two. It is unlikely that Canberra will invest in developing a nuclear industry for the sake of its submarines and will perhaps continue to rely on a US or British nuclear-power package even on Australia's indigenously built submarines, with minimum investment in developing the basic requirements.

Australia's decision to develop an SSN capability and a force level of eight SSNs would have been taken with due deliberation. From a geopolitical perspective, it was an inevitability that would have happened sooner rather than later. The

decision obviously enjoys bipartisan political support without which such a large program—with its larger geopolitical implications, entering a new domain of nuclear capability, and its financial implications—would have been impossible. Cancelling the French submarine contract too would have invited serious consideration, despite the obvious difficulties the program was encountering and what one respected Australian maritime analyst described as throwing good money after bad. The French reaction and its likely impact on the Franco-Australian bilateral relationship as well as on the larger French engagement with the United States and the United Kingdom—particularly in the Indo-Pacific—would also have been factored in, although perhaps the French president's recall of his ambassadors from Washington and Canberra was not. Cost would have been a major part of the decision, whether in the likely penalties for exiting the French contract or the investment required in beginning afresh with an expensive new capability with which Australia has no previous experience, either in the larger civilian domain or in any military application.

Australia has taken a leap of faith with the support of its close allies, the United Kingdom and the United States, for securing its own security interests and as part of a larger regional maritime security architecture. As more details of the AUKUS trilateral emerge, so will clarity on the implications for the region.

Commodore Anil Jai Singh, Indian Navy, retired

Commodore Singh is the Vice President of the Indian Maritime Foundation and heads its Delhi branch. He was commissioned in the Navy in January 1981 and retired in March 2011. In his career, spanning three decades, he had the distinction of commanding four submarines and a Fleet ship. He also served in the Directorates of Naval Plans and Submarine Acquisition at Naval Headquarters He has been a Directing Staff at the College of Naval Warfare, Senior Instructor (Navy) at the National Defence Academy, Khadakwasla, and the Defence and Naval Adviser at the Indian High Commission in London. His last appointment was as Deputy Assistant Chief (Maritime) in the Perspective Planning and Force Development branch of the Integrated Defence Staff in the Ministry of Defence. A postgraduate in defense and strategic studies, he is an alumnus of the National Defence Academy, Defence Services Staff College, and the College of Naval Warfare. Keenly interested in maritime matters, he speaks and writes on the subject regularly in India and abroad and is also involved with the Indian industry associations on defense procurement and indigenization issues.

In Memoriam

CAPT James H. Patton, Jr., US Navy, retired, passed away on Monday, 27 September 2021. He was a 1960 graduate of the US Naval Academy and, over the course of his 25 years in uniform, served on multiple submarines and commanded the USS *Pargo* (SSN-650). He retired in 1985 and opened a consulting company: Submarine Tactics & Technology, Inc. He remained active as a highly respected member of the submariner community. He was also the technical consultant to Paramount Pictures for the film version of *The Hunt for Red October*. We met for the first time on the international lecture and exhibition circuit and enjoyed discussing submarines and other things on many occasions thereafter. I learned a lot about "Boomer" operations from him. He will be dearly missed.

Notes

1. Macron wants strategic Paris-Delhi-Canberra axis amid Pacific tension," *Reuters*, 2 May 2018, https://www.reuters.com/.
2. Janis Cocking, Chris Davis, and Christopher Norwood, *Australia's Requirement for Submarines* (Canberra: Department of Defence, 6, https://www.dst.defence.gov.au/.