

India joined an elite club with the launch of its nuclear-powered submarine, INS Arihant, on Sunday, but the country has a long way to go before it can catch up with competitors, particularly neighbouring China. Josy Joseph reports

# Finally, India has an answer to Chinese nuclear submarines

In the global arms race, especially in the field of nuclear weapons and nuclear-powered submarines, India is far behind its competitors. Given New Delhi's acrimonious relations with China and the latter's secret and un-known military intentions, for India to have a strong posture against the communist country a credible second-strike capability is a must.

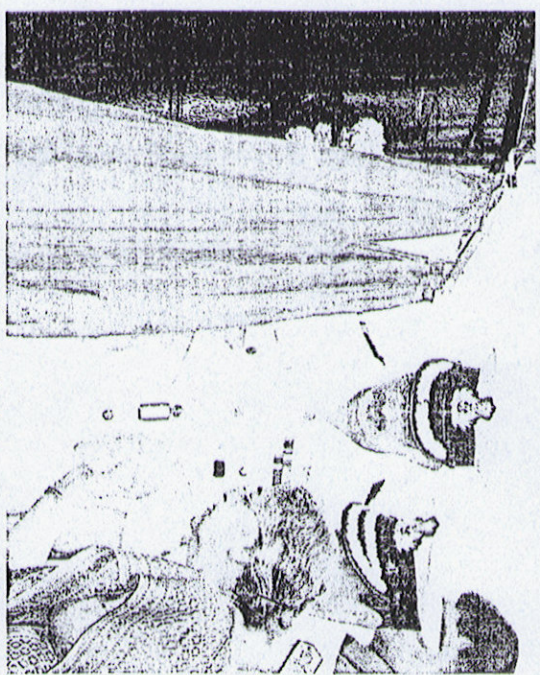
China has at least 11 nuclear-powered submarines, with proposals to acquire better and more capable SSBNs (nuclear-powered, submarine-capable of launching ballistic missiles). Though it does not have the kind of SSBN reach that the US submarines have, China has nevertheless demonstrated its capability in aggressive manoeuvring in the mid-seas against its adversaries.

## INS Arihant should help place India in a position of strength vis-à-vis China, which has at least 11 nuclear-powered submarines

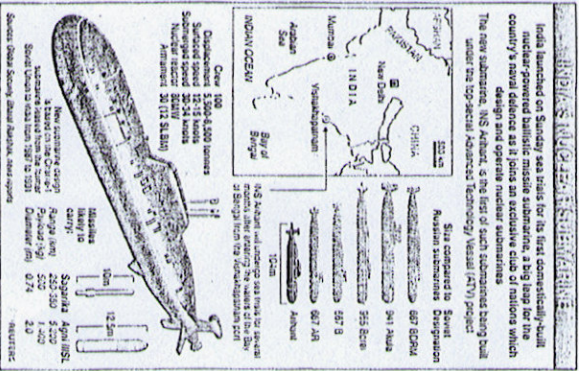
It is believed that China benefited from Soviet assistance in developing its submarine and missile capabilities. The Peoples Liberation Army (PLA) Navy is believed to have commissioned its first nuclear-powered submarine, the Han class, in 1974. This launch may have forced Indira Gandhi to immediately order official work to begin on the ATV, which had been under discussions since 1971.

The US and Russia are global giants in the game of building nuclear-powered submarines. The American navy's Ohio class submarines carry a staggering 14 Trident-II D5 multiple-warhead missiles that can wipe out nations while the Russian Typhoon are the largest submarines ever built, with a displacement of 26,000 tonnes. The US navy's entire submarine fleet is nuclear-powered.

Some strategic analysts believe that the beligerence of China, its aggressive border patrols in northeast India, and its claims to Arunachal Pradesh's Tawang region are all influenced by India's lack of a credible second-strike capability. The INS Arihant should, then, help place India in a position of strength when compared to its larger neighbour.



Prime minister Manmohan Singh's wife Gursahani Kaur breaks a coconut on the hull of India's first nuclear-powered submarine INS Arihant during a ceremony in Visakhapatnam on Sunday. —AP



India launched its Sunday sea trial for the first domestically-built nuclear-powered ballistic missile submarine, a big leap for the country's naval defence as it joins an exclusive club of nations which design and operate nuclear submarines.

The new submarine, INS Arihant, is the first of such submarines being built under the top-secret Advanced Technology Vessel (ATV) project.

Russia contracted to build the submarine. Designation: SSBN (Ballistic Missile Submarine). Displacement: 10,000 tonnes. Length: 100m. Beam: 12m. Speed: 20 knots. Range: 10,000 nautical miles. Armament: 12 SSBNs. Propulsion: 2 K15 reactors. Comms: Advanced Technology Vessels (ATV). Construction: Larsen & Toubro (L&T). Operator: INS Arihant.

## Two more submarines on cards

Josy Joseph, NEW DELHI

Approvals have already been granted for building two more nuclear-powered submarines in the Arihant class, according to sources.

The construction of the hull for the next one is already underway at a facility of Larsen and Toubro (L&T) at Hazira where the first hull was also built, the sources said.

Costing over Rs3,000 crore, the three submarines will be based at a facility being developed close to Vishakhapatnam. For the new nuclear submarine base at Rambilli, hundreds of acres of land has already been acquired and the navy is hoping to commission the base by 2011 in time for INS Arihant's commissioning.

Two of these submarines would be deep in the sea at any given point of time while

the third will rest at the base, the sources said.

The government has also given clearance for the construction of much bigger SSBNs, each of them costing about \$2 billion (approximately Rs 10,000 crore each). This would take off once the three Arihant class submarines are ready. SSBNs are

nuclear-powered submarines capable of launching ballistic missiles.

Besides, the navy has also proposed the construction of nuclear-powered fast attack submarines that would provide escort to the SSBNs.

The SSBNs are not on "par-trol" nor are they looking at attacking large ships or nu-

clear targets on land. They are primarily used to hide nuclear weapons and are kept ready for a second strike in case everything else fails.

Each of the present class of Advanced Technology Vessels (ATV) are to be manned by a 100-member crew. The team is being trained in Visakhapatnam.

The training will get a boost when a nuclear submarine is leased from Russia at three sometime later this year.

Defence Research Development Organisation (DRDO) sources said they are ready to build K-15 missiles, which has a range of over 750 kilometres and can carry 1,000-kg warheads.

A follow-on missile with over 3500-kilometre range — named K-X — is also under development for the nuclear submarines. The DRDO sources said.

Private sector played a major role in Arihant

Josy Joseph, NEW DELHI

For the past two decades a few of India's biggest business houses have been quietly aiding the construction of country's first nuclear-powered submarine.

Larsen & Toubro (L&T) built the hull for the submarine at its facility in Hazira, where in 1988, Dr APJ Abdul Kalam, then DRDO chief, quietly cut the steel for the hull. The ATV (advanced technology vessel) project remains L&T's biggest order from the defence forces for the engineering giant, which has been active in the defence sector for years.

The Tata, too, played an important role in ATV project. Tata Power made the control systems for the submarine and the Watchdogtagar Industries designed many of the systems for the steam turbine.

PVI Maharashtra Singh acknowledged the private sector's role. "I am glad that this submarine is the outcome of a productive public-private partnership. Private industry has evolved considerably during the last few decades and we should leverage its strengths to achieve our defence goals," he said.

A senior executive at one of the firms involved in the ATV said the project has shown that the private sector in India is capable of doing "any complex system, if given the proper opportunity." But defence procurement procedures (DPP) are skewed. "The DPP favours defence public sector units. Defence Research and Development Organisation, and even foreign vendors. I don't find any thing to favour us," said the senior executive.

The K-15 missiles meant for the submarine and its successor K-9 are being developed in Hyderabad and tested at Balasore in Orissa.

OTHER N-PROJECTS

The government has also approved the construction of bigger SSBNs — nuclear-powered submarines capable of launching ballistic missiles.

Each of them will cost about \$2 billion (approximately Rs10,000 crore each).

Nuclear-powered fast attack submarines will also be built to provide escort to the SSBNs.

A missile with over 3,500-kilometre range — named K-X — is also under development for the nuclear submarines.

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