

The significance of Arihant

Written by Administrator

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Arun Prakash

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Prime Minister Narendra Modi's palpable pride at the recent completion of a "deterrent patrol" by the navy's first home-built, nuclear-propelled, ballistic-missile armed submarine (termed SSBN), INS Arihant, is understandable. As a nation committed to "no first use" (NFU), it is of critical importance that an adversary contemplating a nuclear (first) strike should never be in doubt about the credibility of India's nuclear deterrent and the assurance of a swift, devastating response.

Given the kind of transparency provided by satellites and other technical means, the land-based legs of our nuclear triad (missile sites and air-bases) remain exposed to enemy attack. The best way for India to provide invulnerability to its deterrent, therefore, was to send it underwater, on a SSBN; the third leg of the triad. Once the submarine disappears underwater, it becomes virtually impossible to locate and can remain on patrol for months, with its ballistic missiles ready for launch on the PM's orders. This is the kind of credibility that Arihant and her sisters will provide India's nuclear deterrent in the future.

The successful completion of Arihant's maiden deterrent patrol will be analysed threadbare by analysts worldwide for clues and pointers. Apart from demonstrating that the submarine (after a reported mishap in 2017) is fully operational, it is also proof of crew proficiency in operating its nuclear-plant and other complex systems, establishment of standard operating procedures and functionality of the navy's crucial long-range underwater radio communication system. While this is a good augury, excessive jubilation or hyperbole, at this stage, could erode the credibility of the "third leg of the nuclear triad", for three reasons.

First, there is the issue of missile ranges. From a submarine patrol area in mid-Bay of Bengal,

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Islamabad is 2,500 km, while Beijing and Shanghai are over 4,000 km. Even from the northern-most edge of the Bay of Bengal, Kunming is 1,600 km and Chengdu 2,000 km. Therefore, to target cities and nuclear forces deep inside China or Pakistan, from a “safe haven”, India needs a submarine-launched ballistic missile (SLBM) of 6,000-8,000-km range. The missile, reportedly, carried by the Arihant is the K-15, whose range falls below 1,000 km. SLBMs of longer range are, possibly the way, but they will equip Arihant’s successors.

Second, India has, so far, followed an unorthodox system, in which the National Command Authority (NCA) manages the nuclear deterrent through a “troika” consisting of the Strategic Forces Command (SFC), the Department of Atomic Energy and DRDO. While scientists are the custodians of nuclear warheads and help mate them with the SFC’s missiles and IAF fighter-bombers, the MoD and Raksha Mantri remain out of the loop.

Since Arihant and her sisters will carry “cannisterised” missiles, with pre-mated warheads, scientists have been eliminated from the chain, with custody and control of weapons devolving on the submarine’s captain. No doubt, “fail-safe” electronic permissive action links (PAL) have been installed to ensure instant compliance with an authorised “launch” command from the NCA, while preventing accidental launch, structural and doctrinal changes are urgently required too. Which brings us to the third area of concern — an effective command and control structure to cater for this new capability.

The Chairman Chiefs of Staff Committee (COSC) is, notionally, a key functionary in the nuclear command chain, responsible to the PM for functioning of the SFC. With the operationalisation of Arihant, his role assumes greater criticality. Under existing rules, the appointment of chairman is tenable by the senior-most service chief who may (depending on his retirement date) serve for durations, varying from 30 days to 18 months. He discharges this duty on a part-time basis, in addition to running his own service. No other nuclear weapon state has such a farcical arrangement, and this impinges on the credibility of our deterrent.

Given the gravity and magnitude of his responsibilities, in the context of the nuclear triad, the Chairman COSC, in his current avatar, needs to be urgently replaced either by a Chief of Defence Staff or a Permanent Chairman COSC, with an independent charter and a fixed tenure. This can come about only through strong political intervention that overrules entrenched bureaucratic opposition.

Apart from its strategic significance, the Arihant is a live manifestation of PM Modi’s “make in

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India" vision. A number of major private-sector companies contributed to the Advanced Technology Vessel (ATV) programme by mastering esoteric technologies to design and fabricate systems for the vessel. This navy-managed DRDO project has also spawned a huge country-wide indigenisation process by which small and medium industries, have contributed components manufactured to high precision and reliability specifications.

The nuclear-reactors of our SSBNs will need re-fuelling (with fresh Uranium rods) every few years. The process being a rather lengthy one, India would require an inventory of at least 3-4 SSBNs to maintain one on deterrent patrol off each seaboard. A small force of nuclear attack submarines (SSN) would be required for protection of SSBNs and other roles. Thus, in a 50-60 year perspective, India should be looking at a nuclear submarine force of 8-12 SSBNs and SSNs.

While Indian scientists, engineers and designers have learnt a lot about the complex technologies involved in nuclear submarine construction to ensure that Arihant's successors are substantially, made in India, there are key areas of R&D which call for urgent focus and where we may need assistance. These include propellant technology for SLBMs of inter-continental range; the design of a SSBN which will accommodate a battery of 16-24 such SLBMs; and the indigenous development of a powerful nuclear-reactor to drive a 10,000-12,000 ton SSBN.

India's nuclear triad and its accessories are going to cost the nation trillions of rupees in the decades ahead. It would be delusionary to imagine that a large military, and nuclear weapons, just by themselves, can assure India's security and bequeath "great power" status on it. On the other hand, a grand-strategic vision that integrates military power with a national security doctrine will certainly achieve both.

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