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TEJAS AND FUTURE OF INDIAN AVIATION INDUSTRY

91TH RAISING DAY



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Chief of the Air Staff (CAS)
PVSM AVSM VM ADC



ANNIVERSARY EDITION



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NUCLEAR INDIA @25

India marks 25 years as a nuclear-armed nation, prioritizing a no first use policy and credible minimum deterrence. It seeks NSG membership, displaying responsible nuclear conduct, and considers modernization in evolving global dynamics.

On May 11, India is marking 25 years since it formally declared its nuclear weapons status.

In 1998, India conducted three nuclear tests on that day, including a 45-kiloton thermonuclear test, a 15-kiloton fission device test, and two sub-kiloton tests of 0.2 and 0.3 kilotons on May 13 of the same year. In 1974, India had conducted a Peaceful Nuclear Explosion, which continues to be a subject of debate concerning its implications for India's nuclear

status, even though India does not officially acknowledge it as a nuclear weapons test. However, there is informal recognition of the technological benefits gained from it in policy circles.

Force Structure

After 25 years of declaring itself a nuclear-armed nation, where does India stand? The first task was to create a nuclear force structure. This is a requirement for any nuclear weapon country. The nuclear force structure is patterned or follows the policy, strategy, and doctrine

of a nuclear weapon country. India has adopted the policy or doctrine of no first use and no use against non-nuclear weapons countries, and more significantly, its policy/dctrine is nuclear deterrence, not nuclear warfighting. As a result, its force structure is also to be built to reflect India's broad philosophy and doctrine.

India has another element in its nuclear doctrine and policy, namely, credible minimum deterrence. This too guides the size, and possibly, the composition of the force structure. The idea of credible minimum deterrence stipulates that a nuclear weapon country ought not to possess more than it requires means it should avoid an unnecessary accumulation of nuclear weapons. The experience of the two superpowers during the Cold War demonstrates that excessive accumulation of nuclear weapons is costly. The two superpowers had to discard these excessive weapons by spending money on them. Many of the arms control agreements had been concluded to discard militarily redundant weapons or obsolete weapons.



Crater after the underground nuclear test on 11 May 1998 test range.



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However, the credible minimum deterrence does mean that a country like India must have the size of weapons that can provide credibility to its deterrence. Although following the tradition set by China India has not declared the size of its nuclear weapons, it is assumed that it is aware of the need and is building up

its size of the nuclear force as per the assessment and requirement. It is not in a nuclear arms race with any country. It is reviewing and adding. Since it has the doctrine of no first use, it is expected to have enough retaliatory capabilities and infrastructure. The reliance on submarines, including a nuclear-

propelled submarine, Arihant, could be seen as a step towards this direction.

The triad model of deterrence structure has emerged as the favourite of the government and the strategic community. The draft nuclear doctrine created by the strategic community had explicitly recommended the adoption of the triad. India today has nuclear-capable airpower, sea power carrying submarine-based ballistic missiles and land power with a range of missiles. The arrival of Agni-5 and Agni-6 has made the Indian nuclear deterrence further robust. It has generated confidence in the country that if a situation arises, India can reach any part of its known nuclear adversaries.

Engagement with the Global Nuclear Order

Initially, India faced global concerns but has since sought to accommodate itself into the global nuclear order. The international nuclear community appears to have accepted India's nuclear status without granting it Nuclear Weapons State Status under the Nuclear Non-Proliferation Treaty (NPT). India has been pursuing its objective incrementally, with its active candidacy for membership in the Nuclear Suppliers Group (NSG) being the latest step.

Following its 1998 declaration, India engaged with the global non-proliferation order, despite facing sanctions from some countries, including the United States, and condemnation from many others. The United Nations Security Council also passed a resolution against the tests. Geopolitical events such as the 9/11 attacks, along with India's diplomatic efforts, contributed to India's engagement with the nuclear order and non-proliferation regime.



India test launched its Agni-5 nuclear-capable ICBM off the Odisha coast.



The Strobe Talbott-Jaswant Singh talks played a significant role in India abandoning its policy of estrangement from non-proliferation, which had persisted since the NPT came into force in 1970. Initially, India had actively participated in the NPT negotiation process and proposed its resolution, but the international community opted for the Irish resolution. At that time, India's focus was on preventing both vertical proliferation (the qualitative development of nuclear weapons by recognized nuclear-armed states) and horizontal proliferation (the spread of nuclear weapons beyond the five NPT-recognized nuclear-armed states).

Integration with the Nuclear Order

In the early 21st century, India began accepting non-proliferation principles and adopted various non-proliferation norms and mechanisms. A pivotal moment in India's relationship with the non-proliferation order was the 2005 India-United States Civil Nuclear Energy Initiative, known as the Indo-US nuclear deal. This initiative allowed India to align itself more closely with the non-proliferation regime, despite facing opposition within India and from the Western world.

India's journey from estrangement to engagement in the nuclear order continued, leading to a more positive and collaborative relationship with the non-proliferation regime. India aligned its export control system with the guidelines of the NSG and the Missile Technology Control Regime, even though it is still waiting for NSG membership, having already joined the Missile Technology Control Regime.

In the West, opposition primarily came from the non-proliferation community, which was hesitant to accept a non-NPT signatory possessing nuclear weapons and integrating into the non-proliferation order. However, adjustments were made to integrate India within the established rules.

Today, unlike Pakistan and China, India has gained recognition as a responsible nuclear weapons state in the international community. While both China and Pakistan have faced challenges regarding their nuclear activities, India's track record is marked by nuclear restraint, guided by its nuclear doctrine of credible nuclear deterrence and a no-first-use policy. India has avoided saber-rattling, even in its dealings with China, which is conventionally considered superior. This

demonstrates India's commitment to responsible nuclear behavior.

The myth that any war between two nuclear-armed countries would inevitably escalate to nuclear conflict was debunked by the Kargil war in 1999, in which India and Pakistan engaged in conventional warfare without a nuclear exchange. This reshaped perceptions of nuclear dynamics in South Asia.

India has become a proponent of global nuclear stability and has supported many nuclear initiatives it once opposed. Despite not being a signatory to the NPT, India supports the treaty's stabilizing role and advises other nations, such as Iran, to comply with their treaty commitments.

Accommodation with the Nuclear Order

As India commemorates its 25th anniversary as a nuclear-armed nation, the debate over its nuclear status has largely subsided. India is recognized as a nuclear-armed country with a robust nuclear deterrence while advocating for a world free of nuclear weapons. India supports genuine nuclear disarmament initiatives and contributes positively to the contemporary global nuclear order.

India is now waiting for its appropriate accommodation with the global nuclear order. As discussed, membership of the NSG seems to be the most logical step. As well known, this Group of suppliers of nuclear goods sets the tone for the rulemaking of global nuclear commerce. A responsible country like India has already harmonized its strategic trade control with the guidelines and the technology lists of the NSG.

India's integration with the global order has won many friends. The West and the rest minus China

India has adopted the **policy** or doctrine of **no first use and no use** against **non-nuclear weapons countries**, and more significantly, its **policy/doctrine** is nuclear deterrence, **not nuclear warfighting.**



do not seem to be opposing India whenever a move is made to get the NSG membership for it. China remains the stumbling block to India's NSG membership that takes a consensus-based decision. Quite obviously, a single negative vote becomes a veto.

China pushes the criteria of the NPT's membership to scuttle India's case. The move also gives the impression that China wants to help Pakistan and by raising the NPT membership it seeks a bargaining chip for rehabilitating the internationally snubbed Pakistan. The Chinese attempt to link the two cases has not yielded any fruitful results.

The global power configuration in the post-Russia-Ukraine Conflict scenario may determine crucial international questions. India may have to strategize for a new global strategic environment and continue its patience for joining the NSG. China is in a combative mood against India and the West. On the other hand, Russia may have some leverage vis-à-vis China, but it seems its influence has not worked as of now.

Meanwhile, India may continue with its nuclear modernization suitable to the emerging security scenario in which China is modernizing its nuclear force structure by incorporating critical technologies. China has taken the lead in some of these technologies such as quantum computing, Artificial Intelligence algorithms and hardware accelerators.

Many more such technologies that China possesses may give a significant edge to the nuclear force structures of China and Pakistan. The nuclear collaboration between them is not a matter of the past, and A Q Khan's revelations indicate that it has always been a two-way street.



India has also figured impressively in most of the key technology areas in which China is surging ahead. Moreover, India's nuclear modernization must take place indigenously. Despite India's integration with the nuclear world order, the items for modernization or development of nuclear weapons and ballistic missiles will not come because of the operation of export controls. The exemptions in the NSG are only for peaceful nuclear programmes like nuclear energy. The agreements for uranium signed with some countries, are also for only peaceful uses.

Like China, India has also demonstrated its capability in hypersonics. In September 2021, it tested its first hypersonic missile and soon thereafter repeated the feat. India must consolidate the gains it made in this sector. This may add to the robustness of its nuclear deterrence capability. Hypersonic technology is known for possessing the ability to beat the ballistic missile defence system and keeping the window of vulnerability of the adversary open.

That of course does not mean that it should ignore other areas, especially space, and unmanned vehicles. In

fact, China is making news for its autonomous undersea vehicles and unmanned underwater vehicles projects, which may be adapted for a nuclear role. Admittedly, China has been active in the unmanned vehicles, especially drones in the global arms market for a long period, though not producing very sophisticated goods.

India too is taking strides in unmanned vehicles. Traditional government research and development organizations are synergizing their efforts with the private sector. Several private companies are showing promise. The Covid-19 requirement for fewer human interactions boosted India's drone capability which now has multi-dimensional facets. With a little effort, India can produce high-end products useful for its nuclear mission.

A responsible nuclear India needs to keep an eye on the emerging and dynamic nuclear order. For the purpose, it is to call for a review of its evolving nuclear policy, including the nuclear doctrine. It may have to blend several of its policy attributes to keep the country secure and facilitate a global nuclear order. **DSA**