India's Nuclear Journey Post Kargil

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Kargil was an early milestone in India's journey towards becoming a nuclear weapons power. Two decades later, India has shed the image of a reluctant nuclear power and morphed into being a responsible one. The credit for this achievement can be traced to the wisdom that is embedded in India's nuclear doctrine that has guided the development, growth and deployment of its nuclear wherewithal. The hallmarks of the doctrine like Civilian control, No First Use, and Credible Minimum Deterrence have endured despite internal and external pressures. However, the first leg of the operational journey will be completed only when sufficient nuclear submarines are operational, a process that should be completed sooner than later.

Introduction

The Kargil conflict ensued on the heels of India and Pakistan's nuclear tests, conducted in 1998, with just a year separating the two. Though the nuclear weapons capability of both countries was in the initial stages, it still played a role; its form, scope and effect are, however, disputed. The Kargil War of 1999 prompted a wide-ranging set of reforms in India's national security structure. Two reports, namely, the Kargil Committee Report (KRC) and the Group of Ministers (GoM) Report, embodied the reforms. However, these reforms did not cover the nuclear weapons arena because, by itself, both the software and the hardware for becoming an operational nuclear power were rudimentary. The nuclear tests had

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ISSN 0976-1004 print

Journal of Defence Studies, Vol. 13, No. 3, July–September 2019, pp. 139–153

already prompted the creation of the National Security Council, the post of National Security Adviser (NSA), and the National Security Council Secretariat (NSCS) in November 1998. After the May 1998 tests, evolving a nuclear doctrine was tasked to the National Security Advisory Board (NSAB), headed by the doyen of Indian strategic thinkers, K. Subrahmanyam.

Nuclear Doctrine

The draft nuclear doctrine was unveiled by Brajesh Mishra, then NSA, on 17 August 1999, nearly a month after the Kargil conflict. The doctrine not only pointed out that nuclear weapons had become necessary due to the global security environment but also highlighted the requirement of maintaining strategic autonomy in decision making. It further emphasised that India's nuclear weapons were not country-specific and the policy of minimum but credible deterrence had been adopted as the basic building block of nuclear thinking, leading to no first use (NFU) posture. The cardinal principle of civilian control was also stressed.

The draft outlined broad principles for the development, deployment and employment of India's nuclear forces and provided guidelines for policy and strategy. Deterrence was to be achieved by maintaining sufficient, survivable and operationally prepared nuclear forces, robust command and control, effective intelligence and early warning capabilities, comprehensive planning and training for operations in line with strategy and the will to employ nuclear weapons. It also stated that effective conventional military capabilities were to be maintained to raise the threshold of conventional conflicts and the use of nuclear weapons. Nuclear forces were to be based on a triad comprising land, air and sea vectors.[1]

This 1999 draft nuclear doctrine has existed in official limbo ever since. On 2 August 2000, Ajit Panja, then Minister of State for External Affairs, while replying to an unstarred question in the Parliament, clarified that 'the draft paper on India's nuclear doctrine, prepared by the NSAB, merely constitutes one of the inputs submitted to the National Security Council for finalising a doctrine and was released to encourage discussion and debate at wider levels.'[2]

However, the draft has ipso facto been taken as the nuclear doctrine, albeit with some changes contained in the official press release of 4 January 2003—a press release that followed a meeting of the Cabinet Committee on Security (CCS) reviewing the progress in the operationalisation of

India's nuclear doctrine.[3] The press release shared information on aspects of nuclear doctrine and operational arrangements. There were two notable changes from the draft which opened up space for varying interpretations and expanded the scope of nuclear deterrence. Notably, the process of review implied that the draft doctrine was the basis of measuring progress. Therefore, despite Panja's statement in 2000, India's nuclear doctrine is embodied in the draft as modified by the CCS press release of 2003. The modifications relate to describing retaliation as 'massive' and extending deterrence coverage to biological and chemical weapons, and are discussed in some detail below.

1. *Retaliation will be massive:* The first change pertains to descriptive aspects of retaliation. The draft stated: 'any nuclear attack on India and its forces shall result in punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor.'[4] The CCS press release further stated: 'Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage.'[5] The use of 'massive' as the description of retaliation has been criticised for narrowing down the scope of retaliation even when the initial strike is limited. A debate on the issue has ensued. However, retaliation that is massive but linked to unacceptable damage provides some space for flexibility since both terms have never been officially explained.
2. *Deterrence of biological and chemical weapons:* The second issue relates to the role of nuclear weapons being extended to deterrence of biological and chemical weapons. This was not part of the draft and unlike the certainty of retaliation if nuclear weapons were used, the formulation for biological and chemical weapons was different as the press release stated: 'However, in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will *retain the option* of retaliating with nuclear weapons [author's emphasis].'[6] Such a formulation is justified because it covers a contingency but embraces a provisional clause that avoids a commitment if it is a minor episode.

While there is no need to change the basic character of India's nuclear doctrine, there is need to dovetail the two primary sources of the draft and the CCS press release into a single document. The two changes relating to description of retaliation as massive instead of punitive and coverage of biological and chemical weapons could also be reviewed.

No First Use (NFU)

The NFU posture as a central pillar of the doctrine is a major issue that has seen much debate. Adoption of NFU reflects the belief that nuclear weapons only possess a core deterrence role of deterring their own kind. The major criticism against NFU is that it puts India at a disadvantage since it will be difficult to survive a first strike and retaliate due to damage that can be inflicted on the nuclear arsenal and the command and control system. This line of argument, which is natural to military thinking, is based on the notion of victory and defeat, which India believes is not the paradigm that governs the embraced role. However, it is the avoidance of a major war between nuclear powers that is the political and strategic objective. War fighting between nuclear powers involving nuclear weapons is considered impractical due to escalation potential and long-term effects of nuclear explosions on global climate. So far, it has not been possible to derive a nuclear strategy that can answer the question: what happens after the first nuclear weapon has detonated?

Historically, nuclear threats hurled against nuclear and even non-nuclear powers have not achieved any measure of success. China's experience of American nuclear threats before its nuclear tests in 1964 is indicative of this.[7] The recent exchange between Donald Trump and Kim Jong-Un also illustrates that threats of first strike by a superpower against even a nuclear power in its infancy are unlikely to succeed. First strike remains incredible between nuclear powers and the threat to retaliate if struck first certainly has more credibility. But the ability for a second strike requires relentless pursuit of survivability, which is precisely what India's doctrine prescribes.

The NFU policy has political value that surpasses its disadvantages when perceived purely in operational terms. Such value is embedded in the idea that India views nuclear weapons as a necessity arising from and confined to its core deterrence function of deterring nuclear weapons of potential adversaries. No First Use also undercuts the adversary's ability to politically leverage the nuclear card and, coupled with civilian control, promotes stability and projects the image of a responsible nuclear power.[8]

Over the past two decades, doubts about the wisdom of adopting NFU have been frequently expressed. For example, in 2011, Jaswant Singh, a former Defence Minister, stated in the Parliament that there was a need to review the NFU policy.[9] The contents of Bharatiya Janata Party's (BJP) manifesto[10] for the 2014 elections had also set off speculation that NFU would be reviewed. The speculation was immediately laid to

rest by Modi as the Prime Minister aspirant.[11] In 2016, then Defence Minister Parrikar expressed his personal views on NFU and questioned its validity.[12] Former commanders of India's Strategic Forces Command, such as Balraj Nagal, have also suggested modifications to NFU.[13]

The controversy on NFU was stoked when Shivshankar Menon, the former NSA, wrote in his book, *Choices*, that 'circumstances are conceivable in which India might find it useful to strike first, for instance, against a nuclear weapon state (NWS) that had declared that it would certainly use its weapons, and if India was certain that adversary's launch is imminent.'[14]

The scenario relates to receiving perfect intelligence in the midst of an ongoing conflict in which both sides have nuclear weapons on alert. However, intelligence indicating an imminent launch is not amenable to perfect interpretation since intelligence can observe actions but cannot know for sure how to interpret intentions. During hostilities, intelligence becomes increasingly opaque due to the fog of war and presence of dual-use weapon systems like aircraft and missiles. The stakes and consequences of misjudgement are extremely high. It is also impossible to predict the behaviour of political leaders during an intense nuclear crisis, especially when the leaders are likely to be located in underground facilities, receiving various inputs that are also likely to be contradictory. Therefore, though India's NFU does not envisage pre-emption under any circumstances, it is possible that misjudgement, misperception, miscommunication, and/or sheer accident can set in motion a chain of events that manifests as a first strike. The lesson here is that one must avoid the situation where nuclear weapons are alerted. In fact, post the Cuban missile crisis, political leaders of nuclear weapon states have embraced caution in their strategic behaviour, even if it was preceded by aggressive rhetoric. The NFU posture of India is likely to endure even as the pressure for change may linger on.

The credibility of the NFU policy depends on survivability of the nuclear arsenal and its command and control system. Survivability, coupled with retaliation under the framework of credible minimum deterrence (CMD), is therefore the main challenge for India's nuclear strategy.

Nuclear Strategy

India's nuclear strategy has mostly been developed by a combination of civilian strategists and scientists from the Department of Atomic Energy

(DAE) and Defence Research and Development Organisation (DRDO). The role of the military leadership has been peripheral, though it has changed somewhat after the creation of the Strategic Forces Command. But strict political control through the NSA has characterised the shaping of nuclear strategy. The survival of NFU, acceptance of the near impossibility of controlling escalation once nuclear weapons are used, eschewing notions of tactical nuclear weapons (TNWs) and nuclear war fighting are all reflections of strict political control. Notably, all significant operational procedures and practices relating to survivability and retaliation have to be politically approved. The military, the DRDO and the DAE are mere custodians of various components of the nuclear arsenal and cannot act without political approval. Such control prevails over all decisions pertaining to the size, development, deployment, and employment of nuclear forces.

Another major characteristic is the separation of the conventional and nuclear forces. Dual-use assets are earmarked and prioritised for nuclear employment. Planning and evolution of nuclear and military strategies are decoupled. India's nuclear strategy has remained constant, while its military strategy has adopted the notion of limited war.[15] Limited war under nuclear overhang remains untested. Instead, brinkmanship, punitive strikes, border skirmishes and geographically confined conflicts (Kargil) have been the forms of force application. In none of these engagements has nuclear weapons come into play except rhetorically.

The separation between conventional and nuclear plans is conceptually founded on the difference in their roles. The conventional role still seeks victory, albeit in a limited sense of affecting the will of the opponent, whereas the nuclear role is confined to deterring attack by nuclear weapons. However, the decision by the political council to place nuclear weapons on alert during or before a conflict is done through integrated structures like the executive council where the three Chiefs are members. The separation has worked well but is handicapped by the absence of a Chief of Defence Staff (CDS), an issue that is discussed later in the article.

The CMD framework and NFU are the main drivers that have shaped India's nuclear strategy. Achieving survivability coupled with retaliation capability, and communicating it to potential adversaries, is the pivot of India's nuclear strategy. As mentioned earlier, the draft doctrine states that deterrence requires that India maintain sufficient, survivable, operationally prepared nuclear forces and robust command

and control system that is supported by an effective intelligence and early warning system.

Survivability is a dynamic concept determined by the strategic environment, technological imperatives and the demands of national security. Survivability is to be achieved through a triad of aircraft, mobile land-based missiles, and sea-based assets. It should also be enhanced by a combination of multiple redundant systems, mobility, dispersion and deception.

Survivability of nuclear arsenal and the command and control system is also to be ensured against surprise attacks. However, India, unlike the United States (US) and Russia, has not embraced the notion of a 'bolt from the blue' attack that would have required that some portions of the arsenal be kept at a very high level of alert. India has instead maintained a de-mated posture, which will change to some extent with the advent of the ship submersible ballistic missile nuclear powered (SSBN). This, however, is not a doctrinal shift but a technological necessity and could be now described as still being technically de-mated.

The NFU draft has prescribed a triad for survivability. Doctrinally, this prescription should have been avoided as it does not provide leeway for changes in basing due to changes in the strategic environment and technological progress. It is not inconceivable that in the future, nuclear weapons might have to be based in space or a combination of SSBNs and land-mobile missiles are considered more suitable for CMD.

The draft envisages the development of retaliatory capacity that can shift from peacetime deployment to full operational status in the shortest possible time and carry out a rapid punitive response. The response which was changed from 'punitive' to 'massive' has also triggered a debate of India's targeting policy. The debate has largely centred on the neat differentiation that is made between counterforce (CF) and countervalue (CV) targets. These terms have never been officially accepted in India, primarily because the terms are considered hypocritical. In reality, both will involve colossal civilian casualties through short-term and long-term nuclear effects. Moreover, in India's strategic environment, the population densities make any such differentiation impracticable. It would, however, be natural to earmark a range of targets that would satisfy the guidance laid down in the draft for an integrated operational plan, or a series of operational plans. It should be clear that there is sufficient flexibility envisaged in India's nuclear response.

In 2011, Pakistan announced the development of battlefield nuclear weapons.[16] The rationale for the programme was the widening gap created by India's weapons acquisition, huge defence budget, Cold Start doctrine, ballistic missile defence (BMD), and the Indo-US nuclear deal. Pakistan was thus supposedly trying to plug the operational and tactical gaps caused by India's nuclear and conventional strategy. This resulted in a debate in India as to whether India should switch from 'retaliation will be massive' to a 'flexible response' option, which will take care of the problem of disproportionality inherent in retaliating massively. The debate was short-lived as India continued to maintain that any use of nuclear weapons, even of low yield, will have a strategic effect and therefore, for India, there is no nuclear weapon meant only for tactical use. The idea of bargaining through nuclear exchanges was eschewed, as escalation would be virtually impossible to control once nuclear weapons were used. India has steadfastly maintained that limited nuclear war is a dangerous illusion and has decided that the existing doctrine is sufficient to take care of the new developments in Pakistan.

There is no doubt that for the foreseeable future, India's quest for effective survivability and assured retaliation through the triad will endure and shape the nuclear force structure.

Force Structure

For the first decade after the nuclear tests, India's force structure development pursued a path that was determined mostly by technological capability. Both DAE and DRDO played the major role and had maximum influence on decision making. This skewed influence was corrected to a large extent towards the end of the first decade of the twenty-first century. The needed balance was restored when the Strategic Forces Command as the user came into its own.

Apart from creating the triad, the focus was on expanding coverage through increase of range; enhancing mobility of vectors; moving from liquid to solid fuel for land vectors; canisterisation for quicker retaliation and mobility; improving accuracy through advanced guidance technologies, including indigenous satellites; and improved intelligence and surveillance potential, inter alia. Some of the salient features of the nuclear wherewithal are discussed below.

1. *Air leg*: The initial nuclear delivery capabilities were based on aircraft. While the aircraft could cover most of Pakistan and was

presumably based mostly on the Mirage 2000 and Jaguar fighter bomber, it provided very little coverage for China. The air leg of the triad will remain the weakest vis-à-vis China. A limited scope of improvement lies in India's future acquisition of fighter bombers with greater range that are equipped with nuclear-tipped cruise missiles.

2. *Land leg:* Land-based missiles have remained a focus area. In the early days, the range of Prithvi missiles was restricted to 350 kilometres (km). However, at present, India has indigenously developed, produced and deployed the Agni series I, II, III, IV and V missiles, which are solid fuelled and road and rail mobile. The Agni-IV and V, with a range of up to 5,500 km, have made it possible to cover major parts of China—though coverage eventually will be dictated by its deployment areas. Rail-based deployment also provides significant mobility considering India's vast rail network. The Agni series has also expanded the possibility of geographic dispersion that enhances survivability.
3. *Sea leg:* The sea leg of the triad has also made progress. Initially, the sea leg consisted of the ship-based liquid fuel missile, Dhanush, with an operational range of 400 km that was deployed on two specially modified patrol vessels. Despite the missile's short range, vulnerability and limited utility, it is still in service and would continue till the operationalisation of sufficient numbers of SSBNs. *INS Arihant*, the first SSBN, was operationalised in November 2018 and carries missiles of 750 km range. Three more SSBNs with increased missile range of 3,500 km are under different stages of production. Since the SSBNs remain the platform of choice to enhance survivability, there is every possibility of India seeking to develop and produce SSBNs which carry missiles for much longer ranges than the Agni-V. This being the natural choice because India could then leverage operationally the protection provided by the vastness of the Indian Ocean.
4. *BMD:* India has been developing a BMD capability for more than a decade. Recently, the progress in BMD capability was demonstrated when the capability was used to destroy a satellite in low earth orbit on 27 March 2019. Admittedly, it is far more difficult to intercept a ballistic missile and there are no indications of India having operationally deployed a BMD

system. Whenever it does, it would be prudent to initially deploy the system against rogue actors, with the aim to specifically to protect the nation's capital. Subsequently, after gaining sufficient experience and assessing its reliability, the role of India's BMD could be reviewed. Globally, BMD as a defensive system has been countered by developments in offensive countermeasures, like multiple independently targeted re-entry vehicles (MIRVs), hypersonic glide vehicles (HGVs), and hypersonic vehicles.

5. *MIRVs:* Considering the trend to develop BMD systems is perhaps inevitable, India would also have to develop MIRVs for its sea and land-based missiles. The major issue would be to do so without unduly increasing the quantity of warheads. The MIRVs restricted only to sea leg of the triad may be a choice that could keep warhead quantity at a level that fits the CMD framework.

Command and Control

The triad provides the greatest strength to survivability, but the weakest element resides in the command and control system which operationally is relatively easier to disrupt. Such operational vulnerability is not peculiar to India, but the challenge for India emanates from the added emphasis of political control. There are three important aspects that have to be considered in securing the Command and Control system.

Leadership Protection

In principle, vulnerability of the command and control system increases with the greater degree of political control desired. This is so because a concentrated effort on destroying the apex elements of the political leadership could destroy the capability for second strike. However, since this can be foreseen, steps to mitigate the possibility could be taken. This is usually done in terms of alternate chains of command and is an issue that finds mention in the CCS review of 4 January 2003. The gravest vulnerability would be if it was a 'bolt from the blue attack' which could catch the apex leadership in one place, such as the Parliament.

Such scenarios have been part of the gallery of popular nightmare but are far removed from practicality. However, as a crisis looms, it could be expected that measures to protect the chain of command and its alternatives would be catered for and implemented. Protection, in the case of India, could be provided by deep underground shelters, mobile rail systems or specially modified aircraft. The accompanying challenge

is to ensure safe and robust communications required to monitor the situation and pass directions and orders.

Communications

Maximum possible redundancy is the antidote to vulnerability of communication systems. This is indeed a formidable challenge that involves a plethora of networks that have to connect the decision makers to the executive elements, spreading across a vast geographic area that would encompass satellite, surface, sub-surface, seaborne and undersea nodes and communications network. This is one arena that is constantly striving to incorporate technological progress. One can safely assume innovation and upgradation would be endemic in this arena.

CDS

What is a major cause for concern is the continued absence of the CDS who is required, during a crisis or conflict, to monitor the overall military situation and provide advice to the Prime Minister that could involve the planning and execution of retaliation. The existing structure that is based on a rotational and double-hatted appointment of Chairman, Chief of Staff Committee (COSC) is certainly insufficient to meet the command and control needs of India as a nuclear power. This is particularly so because being rotational, the tenures of incumbents are varied, with some getting just a couple of months and others up to 18 months or more. The frequency of rotation and lack of permanency dilutes the role that the Chairman, COSC could play in providing guidance to the growth and shaping of the nuclear arsenal. Also, because of double-hatting, it is highly unlikely that during a conflict, the Chairman, COSC would prefer to leave the conduct of operations by his service to the Vice Chief and be constantly available to the Prime Minister. The sheer pace of operations would not permit the devotion of sufficient time and attention to both roles. Therefore, apart from other inter-service issues, the CDS is crucial because India is a nuclear power. The institution of the CDS is thus a paramount need for improving nuclear India's command and control system.

Strategic Communications

Information when internalised will crystallise beliefs and shape behaviour. Information can be directed at the intended audience through diverse communication channels enabled by information technology.

Nuclear deterrence ultimately requires convincing potential adversaries about India's ability to retaliate through a second strike. The paramount importance and role of the battle of nuclear narratives for successful deterrence in both peace and war deserves due recognition.

India's nuclear doctrine is an excellent example of strategic communications with the central message that nuclear weapons have only a core deterrence role and that there should be no doubt about retaliating to a nuclear strike. But what has room for improvement is the projection of the nuclear wherewithal compromising the various segments of the nuclear arsenal and the robustness of the command and control system.

The challenge lies in the balance that has to be maintained between secrecy and publicity. The publicity accorded to the operationalisation of the first SSBN is an example of strategic communication. Similarly, so are the official statements that follow the successful firing of missiles. However, it is doubtful whether projection of capability, which is mostly done episodically, is part of a larger plan of strategic communications. At the national level, the National Information Board headed by the NSA is tasked to formulate policy on information warfare and information security. Now that India's nuclear wherewithal has grown considerably, there is a definite need to incorporate and dovetail nuclear strategic communications within the broader national strategic communications policy framework.

Non-Proliferation

India has an unblemished record on nuclear non-proliferation and is deservedly perceived as a responsible nuclear power. India has also been active in suggesting various disarmament initiatives since 1954, including Rajiv Gandhi's initiative in 1988.[17] The Indo-US nuclear deal in 2008 is a reflection of the trust placed on India due to its non-proliferation record, with the Nuclear Suppliers Group (NSG) providing a waiver to facilitate the deal. This deal has also allowed the country's integration into various non-proliferation institutions, like Missile Technology Control Regime (MTCR) in 2015 and the Wassenaar Arrangement and Australia Group in 2017. Simultaneously, the efforts to secure NSG membership have not been successful due to the dynamics of regional and global geopolitics centred on China. However, there exists room for cooperation with China towards seeking a Global No First Use (GNFU) treaty due to doctrinal convergence about nuclear weapons.

GNFU

There is significant commonality of thought between India and China's nuclear doctrines. Both visualise similar roles, have embraced NFU, eschewed military control and nuclear war fighting and believe that deterrence requires small but survivable capability. Since nuclear disarmament looks unlikely due to increasing global geopolitical tensions, there is an opportunity for Sino-Indian cooperation in seeking a GNFU treaty. The aim would be to make the world safer by reducing alert levels, and also arrest the dangerous trends that increase the chances of nuclear use due to misjudgement, miscommunication, misperception or sheer accident. India must seize the initiative and work towards GNFU even if the journey is difficult and, at present, looks impossible. This will certainly boost India's image as a responsible nuclear power.

Conclusion

During the post-Kargil journey of 20 years, India has moved from being a reluctant nuclear power to one that is more self-assured. It has also morphed from being an international nuclear outlier to being recognised as a de facto nuclear power. The change in image provides the heft to expand India's role in seeking to reduce the dangers posed by nuclear weapons, in which the pursuit of GNFU could play a major part.

Overall, although the original doctrinal precepts have endured under close political oversight, the journey of operational realisation has still some distance to travel before it reaches the goals it has set for itself, which is the completion of the triad. The operationalisation of at least four SSBNs will be the benchmark that will indicate the completion of the first lap. For sure that will happen within a decade, if not less. The journey is likely to be never-ending so long as nuclear weapons remain the currency of power in international relations.

K. Subrahmanyam's intellectual insight still endures in providing direction to India's nuclear journey and also to the national security reforms impelled by his Kargil Committee Report. Both spheres have stayed separate and comprise the pillars which support India's quest for its rightful place in the world.

Notes

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16. The press release post the first test of Hatf-IX (Nasr) on 19 April 2011 described the missile as a 'short-range surface to surface ballistic missile'. See https://www.ispr.gov.pk/press-release-detail.php?id=1721, accessed 12 July 2019.

17. One of the most prominent and comprehensive approaches aimed at achieving a nuclear weapon free world was presented in 1988 by then Prime Minister Rajiv Gandhi at the United Nations—the 'Action Plan for a Nuclear Weapons Free and Non violent World Order'. It encapsulated a broad based, three phase schedule over a period of 22 years for reaching a world free of nuclear weapons by 2010. See 'Towards Nuclear Disarmament', *The Diplomat*, 23 August 2011, available at https://thediplomat.com/2011/08/toward-nuclear-disarmament/, accessed 12 July 2019.