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RESEARCH ARTICLE

India's Strategic Non-Nuclear Weapons: Doctrinal Shifts and Escalation Risks in South Asia

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Abstract

Building on my previously published work examining the destabilizing effects of India's development and deployment of Strategic Non-Nuclear Weapons (SNNWs), this paper explores how these advanced technologies are reshaping India's doctrinal thinking, thereby increasing the risk of escalation in South Asia. Academic discourse on SNNWs reflects that SNNWs are a complex and contested concept. However, they broadly encompass a mix of kinetic and non-kinetic technologies, such as precision-guided conventional missiles, autonomous drones, hypersonic weapons, and offensive cyber capabilities. These technologies are regarded as strategic because they increase the vulnerability of an adversary's nuclear forces, alter escalation dynamics, and introduce new variables into the deterrence calculus. In the case of the Pakistan-India deterrence equation, India's growing investment in such capabilities, coupled with its evolving nuclear posture and its tendency to accept risks, presents a dangerous shift in regional stability. This trend became evident during the May 2025 crisis, when India conducted conventional missile strikes, conducted cyber intrusions, launched massive misinformation campaigns, and employed unmanned platforms against Pakistan. Such actions indicate a potential normalization of the integration of preemptive force multipliers within the conventional domain. Therefore, this paper argues that India's acquisition of SNNWs, when viewed in conjunction with its doctrinal assertiveness, undermines the deterrence based on survivability of forces and heightens the risks of misperception, inadvertent escalation, and crisis instability. Using qualitative analysis grounded in open-source reporting and doctrinal reviews, the paper highlights the need to reassess the evolving role of SNNWs in the South Asian strategic environment, given the advent of advanced technologies. Moreover, it analyzes their implications and focuses on regional risk-reduction mechanisms to maintain strategic stability.

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Introduction

The complex relationship between India and Pakistan is poised to face further strain due to the development, procurement, induction, deployment, and potential usage of strategic non-nuclear weapons (SNNWs) in conflicts and crises. Additionally, the problem with these weapons is not just about the existence of this technology but about how the decision makers and militaries are perceiving the potential implications of them on nuclear deterrence, which are based on worst-case scenarios. The anxiety associated with an adversary's use of SSNWs is a threat of a non-nuclear first strike (also known as coercion) that could weaken any retaliatory strike. Smaller states with vulnerable or susceptible nuclear arsenals would face issues associated with SSNWs more than the great powers would. Still, in the longer term, as technology proliferates, it will impact regardless.[1] In the Pakistan-India nuclear dyad, the implications of India's continuous strides in developments, procurement, and deployment of SSNWs, when relations between both countries are marred with continuous hostilities, where crises between both countries are a recurrent phenomenon due to historical grievances, which could lead to more aggressive postures during peacetime and preemptive actions during conflict. In such a situation, Indian policy documents, military doctrines, policy statements, military agreements, and procurements, and the increasing tendency to take risks below the nuclear threshold reflect that risks in the nuclear environment are increasing.

One of the worrisome aspects of SNNWs is their potential to impact the existing deterrence equations between states, as deterrence is based on the survivability of the nuclear weapon systems to inflict punishment. Building on

[1] Andrew Futter, and Benjamin Zala. "Strategic Non-Nuclear Weapons and the Onset of a Third Nuclear Age." *European Journal of International Security*, Vol. 6, No. 3 (2021), pp. 257-277.

the background, this paper attempts to answer the central research question: How are India's SNNWs shaping doctrinal shifts and altering escalation dynamics in the South Asian security environment? The study aims at achieving three objectives: a) to find out the strategic imperative of SNNWs, b) to assess the increasing integration of such weapons into India's nuclear strategy, and c) to assess the potential risks these capabilities pose to Pakistan-India deterrence stability, particularly in terms of misperception, inadvertent escalation, and crisis instability. To achieve these research objectives, this research adopts a qualitative approach to doctrinal analysis, open-source reporting, and scholarly commentary to map both India's capabilities and its evolving strategic thought. The doctrinal reviews serve to clarify the desired role of SNNWs within India's military planning. But since the May 2025 crisis is a recent phenomenon, open-source data, including reports on it, illustrate the practical application and operationalization of SNNW technologies. Such methodology allows for a better understanding of the relationship between technological development, doctrinal evolution, and escalation dynamics. This issue is significant because of its contribution to contemporary debates on South Asian strategic stability. By focusing on SNNWs, the study analyzes their potential to destabilize traditional nuclear deterrence logics. This paper begins with a conceptual overview of SNNWs, then delves into India's doctrinal underpinnings and proceeds to analyze specific instances of their deployment and operationalization, focusing on the May 2025 crisis as the case study. Finally, it concludes by examining the implications of SNNWs for escalation management and deterrence theory.

Conceptualizing Strategic Non-Nuclear Weapons

SNNWs have been of interest to strategists since the Cold War. RAND conducted research, interviews, and analysis on the subject, and the findings

were published in the "Winter Study" in 1984, which examined not only the strategic implications of these weapons but also their implications for arms control and theater conflicts. The main argument regarding the impact of these weapons was that SNNWs could be considered as a viable alternative to be used in specific offensive and defensive missions instead of nuclear weapons due to rapid technological developments.[2] The report identified four key factors determining the effectiveness of such weapons: the precise placement of the weapon relative to the target, the concentration of destructive energy, the integration of that energy into the target system, and the exploitation of systemic vulnerabilities.[3] While discussing how SNNWs would impact warfare, the study argued that the development of these weapons appeared more feasible because they could enable a slower pace of warfare. Moreover, the prevailing belief that any confrontation between nuclear states would inevitably escalate into a nuclear war might be altered with the advent of these systems. Such an option provided by nuclear states could enhance bargaining opportunities and crisis resolution at earlier stages of conflict. However, much would depend on the specific deployment plans for these SNNWs. In more recent times, scholars like Andrew Futter and Benjamin Zala have argued that the "world is at the cusp of the third nuclear age," where principal interactions between actors in nuclear order/politics could definitely change because of the development and proliferation of technologies that are, although non-nuclear, have serious strategic consequences.[4]

The central challenge in delineating SNNWs is distinguishing them from other categories of weaponry, particularly in identifying the dividing line between strategic and non-strategic weapons. SNNWs are not ordinary

[2] Carl Builder et al., *The RAND Winter Study on Nonnuclear Strategic Weapons: Executive Summary*, (The RAND Cooperation, December 1984), https://apps.dtic.mil/sti/tr/pdf/ADA153825.pdf
[3] Ibid.
[4] Ibid.

conventional weapons and cannot perform functions limited to the tactical or operational levels of warfare. To address this conceptual dilemma, scholars attempt to describe these weapons as systems that operate below the nuclear threshold yet can achieve a decisive effect or strategic significance.[5] The term "strategic effect" refers to the capability to target the enemy's foundations of national power.[6] This explanation raises an essential question: if we regard strategic targets as those linked to sources of national power, this is a vague interpretation, because what might be assessed as strategic for one side might be expendable for the other. Thus, the targeted state always denies that it is attacked strategically, or worse, because of doctrinal ambiguities. The targeted side claims a strategic attack, but the attacker has just targeted a conventional asset. Such a situation complicates the assessment of effect and intent while using these weapons. Moreover, applying this effect-based logic becomes even more difficult in the case of non-kinetic SNNWs, such as cyber or electronic attacks, that target intangible assets, where the consequences may not be immediately visible.[7] The conceptual puzzle of the absence of differentiation between nuclear and non-nuclear strategic attacks creates space for perceptions and misperceptions among analysts and decision-makers.

Addressing this definitional ambiguity, Fabian Hoffmann offered a comprehensive explanation of SNNWs, describing them as weapons capable of performing strategic functions, with "strategic" understood in the Clausewitzian sense of employing force to achieve political objectives.[8] Hoffmann further

[5] Fabian Hoffman and William Alberque, "Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?," IISS, March 2022, accessed December 22, 2023, https://www.iiss.org/globalassets/media-library---content-migration/files/research-papers/2022/03/non-nuclear-weapons-with-strategic-effect-new-tools-of-warfare.pdf.
[6] Ibid.
[7] Ibid.
[8] Fabian Hoffmann, *Strategic Non-Nuclear Weapons and Strategic Stability – Promoting Trust through Technical Understanding*, (Fondation pour la Recherche Stratégique, November 15, 2021), https://frstrategie.org/sites/default/files/documents/programmes/Programme%20TNP%20-%20P5/2021/202103.pdf

broadened this understanding by incorporating the Cold War interpretation of "strategic weapons," as used in the SALT-I and SALT-II treaties, in which the term "strategic" was primarily associated with the range of weapon systems. Building on this, several supplementary characteristics have been identified for classifying a weapon as SNNWS, including its range, its dual counterforce and countervalue capabilities, and its potential to threaten the adversary's nuclear forces with credibility.

Recent studies have divided SNNWs into kinetic and non-kinetic domains.[9] The most dominant technology among SNNWs is conventional precision-strike missile systems, which have been studied extensively. Nonetheless, this does not mean that in contemporary highly digitized environment, when rapid developments are happening in AI the non-kinetic SNNWs, cyber and electromagnetic nature pose any less threat. While explaining the kinetic and non-kinetic nature of the weapon systems, scholars Hoffman, and Alberque have written that among these weapons when they have kinetic capability it means that they could have implications for the physical realm with their destructive capability, precision and accuracy. On the other hand, "non-kinetic" effects of these technologies enable them to deny the adversary access to electromagnetic and information networks. These non-kinetic weapons systems include electromagnetic pulses, information/disinformation campaigns, and computer operation networks and offensive cyber operations. However, kinetic weapon systems include missile systems (cruise, ballistic, and hypersonic), Ballistic Missile Defence systems (BMD), unmanned aerial/naval vehicles (UAVs), and kinetic ASATs (that require the actual striking of satellite systems).[10]

[9] Ibid.
[10] Ibid.

Some of these technologies could target mobile missile platforms. They also discuss new techniques for locating and engaging nuclear-armed submarines, which have historically been regarded as the most robust element of nuclear deterrence because they can stay hidden in the ocean, in contrast to silo-based missiles or aircraft, which are typically located. They also highlight kinetic and non-kinetic anti-satellite technologies, as well as counter-space capabilities. Because key nuclear countries heavily rely on space-based assets for intelligence, surveillance, reconnaissance, and early warning, ASAT weapons pose indirect dangers to nuclear stability even though they are not direct counterforce tools.[11]

India's Evolving Doctrinal Thinking

Another crucial aspect in effectively utilizing these technologies is the states' intent in their deployment. Understanding the link between technology and policy is vital; while policy typically guides technology, advancements sometimes outpace policy adjustments. Presently, states pursue technological development with diverse motives: some fall victim to technological complexes, others aim to maintain hegemonic positions, and some develop technologies for domestic political reasons. Recently, a wave of techno-nationalism has emerged, with states pursuing technological developments and asserting national control over them to advance their national security and geopolitical interests.[12] While explaining the importance of understanding the role of technology for developing better policies and effective doctrines, John Garnett said that strategists must invest considerable effort in unfolding modern weapons to inform strategic planning. In this regard, the central question for any

[11] Ibid.
[12] Summar Iqbal Babar and Ahyousha Khan, "Changing Global Order: Rise of Techno-Nationalism and Pakistan," *Strategic Studies*, Vol. 45, No. 1 (2025), pp. 1–20, https://issi.org.pk/wp-content/uploads/2025/08/4_Summar_Iqbal_Babar_and_Ahyousha_Khan_SS_No._1_2025.pdf

strategist, according to Garnett, is to consider whether an innovation in weapon systems is a controllable phenomenon with predictable patterns or an entirely unpredictable one.[13] Garnett further argued that developing a technology into a weapon is a decision that requires not only technological prowess and expertise but also political will; to explain his point, he gave the example of enhanced radiation weapons, which exist in principle but have never been produced due to political, moral, and strategic constraints. This example shows that not only technological feasibility determines whether a weapon is developed or deployed, but also other political, moral, and ethical reasons.

States could develop their doctrines and policies to reduce the risk of strategic ambiguity arising from the inherent duality in the use and nature of these technologies. But most of the time, states provide doctrinal and policy cover for technological developments, which leads to arms races or build-ups. [14] Sometimes, nuclear states ensure the dual-use nature of certain technologies remains part of strategic doctrines, such as ballistic and cruise missiles that have long been integral to the strategic and nuclear programs of almost all states. [15] This situation is evident in the India-Pakistan context, where dual-capable and dual-use technologies are embedded in the strategic equation, and on top of that, doctrinal shifts complicate efforts to eliminate ambiguity and potentially lead to misperceptions and misinterpretations. SNNWs can yield significant strategic effects. However, their dual nature and potential for ambiguity can make effective retaliation challenging for defender-states. This advantage enables possessors or aggressors to exploit these weapons selectively. States inclined to

[13] John Garnett, "Technology and Strategy," *Contemporary Strategy: Theories and Policies*, ed. J. Baylis, K. Booth, J. Garnett, and P. Williams, 1st ed. (London: Routledge, 1975), https://doi.org/10.4324/9781003104339
[14] Ahyousha Khan, "Strategic Non-Nuclear Weapons (SNNWs) and Deterrence Stability between Pakistan and India," *Strategic Perspectives*, June 30, 2024, https://strategicperspectives.cissajk.org.pk/strategic-non-nuclear-weapons-snnws-and-deterrence-stability-between-pakistan-and-india/
[15] Ibid.

pursue conventional aggression for limited goals will find these weapons effective.

Furthermore, scholars argue that these offensive technologies empower leaders of aggressor states to preemptively strike to neutralize threats, potentially escalating crises into conflicts. The dual-use nature of these technologies entangles conventional and nuclear systems during a crisis, exacerbating the risk of misinterpretation. [16] Nuclear-armed states may view deployment or acquisition of these weapons as threats to their deterrent capabilities, facing a "use it or lose it dilemma."[17] As previously discussed in the context of "deterrence stability," SNNWs significantly impact arms races and build-up between conflicting states, influenced by competitive dynamics among nations.

The effectiveness of these technologies in delivering strategic results and India's dubious NFU posture engenders threats for Pakistan. Pakistan has consistently reiterated that the Indian nuclear doctrine is an open-ended document, with many self-contradictory objectives and excessive verbiage, leaving room to lead policy and technological developments in any direction that seems favorable. Vipin Narang, in this regard, argued at the Carnegie Nuclear Policy Conference in 2017 in Washington that India's NFU policy offers "far greater flexibility" than is generally recognized, allowing it to shift towards a counterforce strategy rather than a countervalue strategy. [18] He deduced this perception from the book by former Indian NSA, Shivshankar Menon. Narang again reiterated this argument in his paper that he wrote with

[16] Zohaib Altaf and Nimrah Javed, "The Triad of Technology and Its Implications for Strategic Stability in South Asia," *South Asian Voices*, May 2, 2024, https://southasianvoices.org/sec-c-pk-r-triad-of-technology-05-02-2024/.
[17] Ibid.
[18] Alicia Sanders-Zakre and Kelsey Davenport, "Is India Shifting Nuclear Doctrine?" *Arms Control Association*, May 2017, https://www.armscontrol.org/act/2017-05/news/india-shifting-nuclear-doctrine.

Clary, where it is argued that India has relinquished the policy of NFU, if not then why it has been investing heavily in building a diverse array of weapons with achieving high accuracy and nuclear delivery vehicles in cannisterized positions; along with massive investment and procurement of ISR platform and ballistic missiles defense systems.[19] Both authors further added that India's pursuit of these technologies is not the result of any strategic drift or strategic conclusion, but reflects the conscious policy of India's policymakers to pursue more flexible options beyond counter-value targeting. In this regard, SNNWs are a practical choice to consider due to their precision strike and attaining strategic objectives without even using nuclear weapons.

In addition, Indian strategic thinking, post-Kargil episode, has been to utilize the option of limited conflict against Pakistan.[20] In response to the 2001-02 military stand-off, India recognized the strategic imperative to restructure its military forces to ensure a permanent forward deployment, thereby enhancing the capacity to achieve limited objectives with an element of surprise. Consequently, India adopted the Cold Start Doctrine (CSD), also known as the swift operations doctrine. Initially, India denied the existence of such a doctrine; however, its force posture and, nearly a decade later, India's ex-Chief of Army Staff, Gen. Bipin Rawat (late), accepted, during a press conference, the existence of the doctrine of provocative operations.[21] The doctrine presumed that to achieve significant military objectives against Pakistan, India would deploy Integrated Battle Groups (IBGs) along the border to conduct operations

[19] Christopher Clary and Vipin Narang, "India's Counterforce Temptations: Strategic Dilemmas, Doctrine and Capability," *International Security*, Vol. 43, No. 3 (2018), https://www.belfercenter.org/sites/default/files/files/publication/isec_a_00340.pdf.
[20] Zafar I Cheema, *Indian Nuclear Deterrence, Its Evolution, Development and Implications for South Asian Security*, (Oxford University Press: Oxford, 2010).
[21] Kadayam Subramanian, "India's New Army Chief and 'Cold Start' Military Doctrine," *Asia Times*, February 09, 2017, accessed May 10, 2024, https://asiatimes.com/2017/02/indias-new-army-chief-cold-start-military-doctrine/

within Pakistan and withdraw. This indicated India's ambition to exploit the sub-conventional realm below the nuclear threshold.

In 2016, India conducted the so-called surgical strikes under this doctrine. The emphasis on surgical strikes persisted in India's Joint Forces Military Doctrine (IJFMD) of 2017.[22] In its 2017 doctrine, India highlighted the strategic significance of emerging technologies, particularly in cyber offense, asserting that its cyber operations should prioritize gaining an advantage while simultaneously denying similar capabilities to adversaries. The Land Warfare Doctrine (LWD) issued by India in 2018 placed importance on the synergy between AI and military systems. Moreover, in 2019, former Indian Army Chief General Bipin Rawat emphasized the need to adopt AI in military systems. Indian military modernization is increasingly focused on acquiring a diverse range of SNNWs.

India ranks among the world's largest arms importers, second only to Ukraine, which is engaged in an ongoing conflict.[23] One of the most significant SNNWs-related threats to deterrence stability originates from India's sustained investment in missile defense systems. In this context, its acquisition and deployment of S-400 systems along the border with Pakistan represent a notable escalation in regional strategic capabilities.[24] India's investment in missile defense systems reflects a broader trend in its strategic thinking, indicating a dual approach: on the one hand, India is pursuing counterforce targeting, while

[22] Ahyousha Khan, "Surgical Strikes and Deterrence Stability in South Asia," *South Asia Journal*, October 16, 2017, https://southasiajournal.net/surgical-strikes-and-deterrence-stability-in-south-asia/, accessed May 10, 2024.
[23] Mathew George, Katarina Djokic, Zain Hussain, Pieter D. Wezeman, and Siemon T. Wezeman, *Trends in International Arms Transfers, 2024*, SIPRI Fact Sheet (Stockholm: Stockholm International Peace Research Institute, March 10, 2025), accessed December 26, 2025, https://www.sipri.org/sites/default/files/2025-03/fs_2503_at_2024_0.pdf
[24] Express Tribune, "India Deploys Russia's Air Defence System Along Pakistan Border," *The Express Tribune*, December 21, 2021, https://tribune.com.pk/story/2334972/india-deploys-russias-air-defence-system-along-pakistan-border

on the other, it is developing missile defense capabilities. This combination suggests a movement toward a "damage limitation" strategy.[25] BMD is an ideal system for achieving a damage limitation strategy through a two-layered system, in which the first layer is designed to perform the role of intercepting missile/s coming from the adversary before they can hit the targets, and the second layer targets and eliminates the adversary's strategic forces, often known as counterforce strikes. Therefore, when combined, these capabilities could allow a decapitating (first) strike of not only nuclear troops but also against other strategic and related infrastructure.

Currently, to enhance target acquisition and eliminate its vulnerability to nuclear strikes, India is developing a layered BMD shield (Sudharshan Chakra), along with sophisticated intelligence, surveillance, and reconnaissance (ISR) satellites and an early-warning network. India's extensive network of military satellites, with its four foundational agreements that could facilitate the acquisition of real-time information from the US, would further augment India's situational awareness. Simultaneously, India is investing in and developing its counterforce capabilities. Reports indicate that India is building its strategic rocket force modeled on China's PLA Rocket Force. Moreover, it is also working on the development and operationalization of a triad of supersonic BrahMos missiles and a hypersonic missile system. In this vein, it has tested the engines of hypersonic cruise missiles as well, with a lot of prestige-driven coverage, which has made it part of the elite club of states now. Although India claims that the BrahMos system is conventional, the inherent duplicity of India's nuclear posture becomes evident when BrahMos is integrated with aircraft capable of long-range operations under the Strategic Force Command (SFC),

[25] SVI International Webinar on 'Nuclear Deterrence and Strategic Stability in South Asia' on December 20, 2022," Strategic Vision Institute, February 8, 2023, https://thesvi.org/svi-international-webinar-on-nuclear-deterrence-and-strategic-stability-in-south-asia-on-december-20-2022/

which clearly indicates a dedicated nuclear role. Additionally, India is procuring and incorporating the Rampage (air-to-surface/ground) Israeli-origin long-range onto its Sukhoi aircraft. The acquisition of Rafale fighters similarly enhances India's ability to conduct strategic counterforce, Beyond-Visual-Range (BVR) missions, and precision strikes using air-launched cruise missiles.

India's doctrinal evolution demonstrates a deliberate integration of SNNWs into its military and strategic planning, which is not the issue; the objective of a damage-limitation strategy towards these technologies is to enable both preemptive and retaliatory options while exploiting the systems' dual-use nature. India's modernization includes BMD, precision strike missiles, ISR networks, and AI-enabled platforms, highlighting its conscious efforts to manipulate the levels below the nuclear threshold. These developments, coupled with a flexible No First Use (NFU) posture and limited conflict doctrines such as Cold Start, significantly complicate deterrence calculations for Pakistan. As the region moves towards integrating increasingly sophisticated, ambiguous, and dual-use military capabilities, understanding India's evolving doctrinal thinking is essential for assessing the dynamics of arms competition, escalation risks, and the role of SNNWs in shaping crisis behavior. Owing to this doctrinal and policy thinking, India utilized SNNWs during the 4-Day Conflict in May 2025, imploring Pakistan to respond with options available to it, highlighting the tit-for-tat nature between the two countries, and these strategic responses would certainly have implications for regional stability.

Case Study: The May 2025 Crisis

In May 2025, India and Pakistan, both nuclear powers, were involved in a four-day limited conflict following a terrorist incident in Indian Illegally Occupied

Jammu and Kashmir (IIOJ&K) that resulted in the killing of 26 civilians[26]. India blamed Pakistan without proof, despite the joint-investigation proposal from Islamabad, and launched precision missile strikes on civilian infrastructures inside Pakistan on the night of 6-7 May. Pakistan retaliated by shooting down multiple Indian aircraft, including a Rafale fighter capable of nuclear delivery.[27] Followed by artillery rocket strikes and offensive cyber operations that targeted India's S-400 missile defense battery, reportedly disabling one radar. India responded with BrahMos missile attacks on the Nur Khan Airbase,[28] near critical Pakistani assets, and employed its missile defense systems to intercept retaliatory strikes. The conflict was further intensified by a mass misinformation campaign, including false claims of attacks on Pakistan's nuclear sites.[29] This case demonstrates how two nuclear neighbors engaged at a level below the nuclear threshold for limited conflict, reflecting the normalization of high-intensity warfare under the shadow of nuclear deterrence. The introduction of SNNWs further eroded any mutual restraint in the conventional realm, blurred nuclear red lines, and reduced crisis stability. India's doctrinal shifts towards counterforce and damage-limitation strategies indicate a dangerous evolution in military thinking, especially on the Indian side, which believed it had carved out space for a particular kind of "controlled escalation" below nuclear escalation.

The following table depicts the use of SNNWs by both countries during the May conflict.

[26] Al Jazeera Staff, "'Act of War': What Happened in Kashmir Attack That Killed 26 Tourists," *Al Jazeera*, April 23, 2025, https://www.aljazeera.com/news/2025/4/23/act-of-war-what-happened-in-kashmir-attack-that-killed-26-tourists
[27] Aamir Latif, "Pakistan Shot Down 6 Indian Jets, Including 4 French-Made Rafale During Conflict: Premier Sharif," *Anadolu Agency*, May 28, 2025, https://www.aa.com.tr/en/asia-pacific/pakistan-shot-down-6-indian-jets-including-4-french-made-rafale-during-conflict-premier-sharif/3582409
[28] Sansad TV, "Press Briefing by DGMO of All Three Services on #Operation Sindoor , 11 May 2025," YouTube video.
[29] Debashis Chakrabarti, "Kirana Hills And The Illusion Of Nuclear Stability In South Asia," *Frontline*, May 16, 2025, https://frontline.thehindu.com/politics/kirana-hills-rumour-nuclear-c

Table 1. SNNWs used in the India–Pakistan 4-Day Conflict (May 2025)

State	System / Platform	Type / Category	Primary Use in Conflict	Strategic Significance
India	**BrahMos cruise missile**	Supersonic cruise missile (land/air/sea-launched)	Strikes on Pakistani air bases (Nur Khan, Rafiqui, Sargodha, Bholari, Jacobabad)	High-precision, high-speed counterforce capability threatens fixed and dispersed air assets and base survivability
	SCALP (air-launched cruise missile)	Long-range standoff strike	Deep strikes from Rafale on Muredke, Bahawalpur	Deep penetration, low-observable strike; strategic messaging and target denial
	Rampage & Crystal Maze	Solid-propellant precision strike rockets/missiles	Targeting hardened and strategic sites	Increased ability to hit hardened/critical infrastructure
	Harop / anti-radiation loitering munitions	SEAD loitering munitions	Suppression of Pakistani radars and SAMs	Degrades air-defence effectiveness; creates windows

				for follow-on strikes
	S-400 / Barak-8 / Akash / SAMAR	Multi-layered air & missile defense	Area protection and point-defense against incoming strikes	Strengthens defensive shield; aids damage-limitation and tempo management
	Decoy and anti-radiation drones; EC-UAS grid	UAVs and electronic counter-UAS	Saturation, deception, and counter-drone operations	Complicates Pakistani air-defence targeting and attribution
	Cyber intrusions & EW	Offensive cyber and electronic warfare	Disruption of Pakistani C2, ISR, and logistics networks	Blurs domain boundaries; potential to affect nuclear-related systems indirectly, create more fog or war
	Use of AI	Battle Surveillance System (BSS), including Trinetra and Edge AI	For target identification, prioritization, acquisition, and engagement	Better target acquisition and compressing the timelines

Pakistan				
	Fatah-I / Fatah-II missiles	Surface-to-surface precision-guided missiles	Conventional long-range precision strikes	Demonstrates deep conventional strike capability below nuclear threshold
	CM-400 / SEAD weapons	Air-launched anti-surface / SEAD missiles	Attacks on Indian S-400 battery sites	Attempt to degrade Indian air-defence nodes; contest A2/AD
	PL-15 BVR (on J-10C) & fighter escorts	Long-range air-to-air missile	Air superiority and protection of air corridors	Threat to AWACS and tanker support; counters Indian air operations
	Yiha-III / Yiha-111 & Songar loitering munitions / Warmate	Loitering munitions and strike drones	SEAD, point strikes across the LoC and the border	Low-cost precision options complicate the Indian air-defense picture
	SH-15 (155mm) precision artillery & Excalibur	Precision artillery and guided rounds	Deep-fire support and counter-	Tactical precision aiding operational-level coercion

			battery across the LoC	
	HQ-9, LY-80, short-range SAMs; EW (Saab-2000 Eriye, DA-20)	Integrated air defenses & EW/ISR	Area defense, jamming, C4ISR support	Protects strategic assets and supports real-time targeting
	Offensive cyber & information operations	Cyber-attacks and informational warfare	Temporary degradation of the Indian military infrastructure	An asymmetric tool to impose costs and complicate Indian targeting

The deployment of these SNNWs carries significant implications for escalation dynamics, increasing the risks of inadvertent escalation, accelerating crisis instability, and generating uncertainty, ultimately undermining the ability of both states to achieve the objective of strategic stability. Therefore, the implications of these systems and capabilities are explored in the following section.

Implications on Escalation Dynamics and Strategic Stability in South Asia

Undermining Survivability-Based Deterrence

Nuclear deterrence theory has two core tenets. First, it emphasizes that states should refrain from attacking adversaries because the expected cost of conflict exceeds the calculated benefits. Secondly, even relatively weaker states could cause sufficient damage to their stronger adversary. Thus, these tenets reflect nuclear weapons as “ultimate instrument of deterrence” because their

possession means that the adversary would always have to consider the risk of nuclear retaliation. When nuclear arsenals are survivable, capable of withstanding an enemy's first strike and delivering a retaliatory response, they create a powerful deterrent by serving as a force for maintaining peace. The theory of the "nuclear revolution" builds on the logic that suggests that nuclear weapons fundamentally secure states, allowing them to avoid the most severe consequences of an anarchic international system. Once states possess survivable nuclear forces, they need not fear conquest. However, the emergence and proliferation of SNNWs are challenging this stability by threatening the survivability of nuclear weapons and systems, in turn, complicating the logic of deterrence. [30] Consequently, states believe that if they have more weapons and systems, they will have a better chance of withstanding an adversary's first strike and that their nuclear deterrent would survive. This belief leads states to indulge in a costly arms race. In such a situation, the primary consideration for any state is not absolute gain but relative gains, because with more resources at their disposal, they will invest in technology and military forces; therefore, states are obliged at least to maintain some level of parity with their adversary.

Scholars believe that, under the influence of emerging technologies, the character of deterrence could transform significantly.[31] But this prospect has not yet been subject to detailed analysis because that very assumption would challenge the notion that nuclear deterrence is the ultimate weapon. But scholars at RAND studied this difficult question through two criteria: one, analyzing the "effectiveness" of deterrent threats in the face of emerging technologies, and

[30] Keir A. Lieber & Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security*, Vol. 41, No. 4 (2017), pp. 9–49, https://doi.org/10.1162/ISEC_a_00273

[31] Micheal J. Mazar et al., *Disruptive Deterrence: Examining the Effect of Emerging Technologies on Strategic Deterrence in the 21st Century*, RAND Research Report, March 2022, accessed October 03, 2025, https://www.rand.org/pubs/research_reports/RRA595-1.html

two, charting the impacts of these technologies on the "stability" of deterrence.[32] The study found that although the effectiveness of deterrence threats remains, the stability of deterrence is challenged in multiple ways due to developments in emerging and disruptive technologies. According to the above discussion, deterrence based on mutual vulnerability can persist only as a state of stalemate if both sides continue to respect it. However, adversarial states often pursue arms buildups, and technological advancements have further enabled the development of weapon systems that challenge the survivability of nuclear deterrence. These technologies increasingly call into question the efficacy of deterrent threats. Pertinent factor here is the extent to which such technologies can undermine deterrence, which depends on two critical factors: the scale of technological advancement and the specific types of technologies employed against an adversary's deterrent capabilities. In the case of the Pakistan-India May 2025 crisis/conflict, the events demonstrated that the efficacy of deterrence remains a valid factor, as confrontations remained below the nuclear threshold and Indian actions never threatened Pakistan's existence. Nevertheless, the question of the stability of the deterrent threat was raised because India was tempted to attack Pakistan and, on top of that, claimed that it had targeted nuclear facilities after the attack on Nur Khan[33] and Kirana Hills.[34] While these locations were not directly related to deterrent capabilities, India's claims reflected a willingness to take deliberate risks by targeting them. Christopher Clary, citing Ankit Panda in his article for the Stimson Center, described India's actions as "knocking on the nuclear door."

[32] Ibid.
[33] Sansad TV, "Press Briefing by DGMO of All Three Services on Operation Sindoor," May 11, 2025," YouTube video
[34]Debashis Chakrabarti, "Kirana Hills and the illusion of nuclear stability in South Asia," *Frontline*, May 16, 2025, https://frontline.thehindu.com/politics/kirana-hills-rumour-nuclear-c.

Risks of Misperception and Inadvertent Escalation

SNNWs enable the states to pursue the objective of fighting even below the nuclear threshold. On the other hand, they allow nuclear power, or, as a matter of fact, because of their large-scale availability to non-nuclear states, they give states an advantage to target nuclear arsenals of other states. The focus of this heading is the first case in which states see utility in employing below-nuclear-threshold tactics in conventional war to attain political objectives. The catch with this phenomenon is that no one guarantees that traditional conflict will not spiral into nuclear conflict. These weapons can hit strategic targets and have strategic implications. Thus, it is left to the adversary to decide how it will perceive and interpret the attack and react, which is dangerous territory. Therefore, the question that arises here is the one that Barry R. Posen has already posed in his book "Inadvertent Escalation: Conventional Wars and Nuclear Risks": "Can nuclear powers fight conventional wars with each other and avoid the use of nuclear weapons?"[35] Posen, in his own words, said that this question is not just raised for global powers but also for regional nuclear states. He argued that rationally any nuclear state would be obliged to use its nuclear weapons if its most vital interests are under severe threat, which could include the loss of territory. However, Posen also highlighted another pathway for nuclear use, termed "inadvertent escalation." This occurs when nuclear weapons are employed in ways that were not anticipated or intended by the national political or military leadership. In other words, nuclear escalation could unfold in different scenarios without explicit orders to use it. Inadvertent escalation differs from "accidental escalation," which involves unintentional detonations or launches. Posen outlined several scenarios in which inadvertent escalation could occur: A) in a large-scale conventional operation, contact between nuclear

[35] Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, NY: Cornell University Press, 1991).

and non-nuclear forces happens in a way that nuclear forces of one side are damaged in a non-nuclear attack, especially if the doctrines of other states have clauses of using nuclear forces against such limited attacks. B) Moreover, mainly if the nuclear forces of the adversary are merely targeted not to start a nuclear war, but with the conscious intent that the desired objective of destroying such forces is to achieve a conventional objective. C) Another example of inadvertent escalation is when a large-scale military operation in an area of strategic importance, between nuclear and conventional forces, happens. D) strategic assets (strategic early warning or C2systems), including nuclear forces, are attacked in a conventional strike directly, which would degrade the nuclear forces and cause an action-reaction chain.

Such a situation becomes more damaging, leading to escalation if either one or both adversaries are committed to "counterforce" doctrines. The possibility of inadvertent nuclear escalation could be reduced if conflicting parties resort to deterrence strategies based on mutual vulnerability and adjust their force postures accordingly.[36] However, the above-mentioned scenario is concerning for South Asia, especially Pakistan, because India has adjusted its forces to entice counterforce actions, in line with its nuclear doctrine, which is filled with jargonistic lacunae that do not reflect its true intentions. Conventionally, India is marred by the desire to keep exploiting sub-conventional and conventional levels, under the false impression that it is trying to establish a particular kind of so-called "new normal."[37], where they could conduct strikes inside Pakistan and could also target military installations and dual-use capabilities like radar systems, such a scenario reflects the conscious intention to target dual-use systems for conventional military objectives. However, Indian SNNWs are

[36]Ibid.
[37] "India's 'New Normal' a Serious Threat to Peace," *The Express Tribune*, May 29, 2025, https://tribune.com.pk/story/2548324/indias-new-normal-a-serious-threat-to-peace.

currently in the development phase. They cannot strike critical strategic forces or conduct a large-scale conventional attack without incurring retaliation or incurring costs. Still, the progression of technology, doctrines, policies, and postures is reflected in mid- to long-term Indian investments in technologies such as supersonic and hypersonic weapons, along with ISR, anti-satellite capabilities, and BMD technologies, increasing the likelihood that it seeks to pursue a first strike.

Crisis Instability and Rising Uncertainty

The spread of SNNWs contributes to a strategic environment defined by uncertainty and less tangible threats. The precision, speed, and invisibility of these systems, especially cyber operations and autonomous drones, generate deterrence instability by eroding confidence in existing retaliatory capabilities. Perceptions of resilience and credibility are more important to maintain deterrence in the digital age, as Futter observes. In Pakistan's view, India's rapid technological militarization and its constant denial and reluctance to join any new risk-reduction mechanism magnify uncertainty. The opacity surrounding India's military Artificial Intelligence (AI) programs, for instance, makes it difficult for Pakistan to discern its adversary's intentions. Most recently, in May 2025, India deployed AI to improve target acquisition accuracy by integrating data and live feeds from a variety of sources, including sensors, drones, radars, and satellites.[38] Scholars believe that though these claims by the Indian army cannot be independently fact-checked, the mere intention and claims would create a difficulty for Pakistan in any next confrontation. As SNNWs are increasingly viewed as tools that can enable non-nuclear first strikes with strategic-level effects, India's pursuit of conventional counterforce options,

[38] Ajay Banerjee, "With AI help, hit Pak assets with 94% accuracy in Operation Sindhoor: Army," *The Tribune*, October 7, 2025, https://www.tribuneindia.com/news/top-headlines/with-ai-help-hit-pak-assets-with-94-accuracy-in-op-sindoor-army/.

exemplified by its development of hypersonic engines for cruise missiles and BrahMos variants, signals an ambition to achieve quick, decisive effects without crossing the nuclear threshold.[39] However, from a Pakistani perspective, such capabilities fundamentally challenge the notion of deterrence stability. The perception that India could degrade Pakistan's retaliatory forces conventionally, because Pakistan's nuclear forces are developed on the principle of credible minimum deterrence without indulging in an arms race, would sufficiently strain deterrence's credibility. The result of such a situation would be the "use it or lose it" dilemma observed during the Cold War crises, but under far more compressed timelines.[40] As such, SNNWs do not strengthen non-nuclear deterrence; they create conditions that make nuclear use more, not less, probable. Finally, SNNWs contribute to faster operational tempos and compressed decision-making timelines, leaving little room for crisis management or diplomatic de-escalation. The speed of hypersonic weapons, coupled with automated ISR and cyber disruption, could reduce leaders' decision windows from hours to minutes. Payne and Acton both emphasize that reduced decision time increases the likelihood of catastrophic miscalculations in nuclear-armed dyads.[41]

Entanglement and Blurring the Nuclear and Non-Nuclear Divide

The most immediate risk posed by SNNWs is the creation of new inadvertent escalation pathways through entanglement and indistinguishability. In 2000, American political scientist John Steinbruner first used the term "entanglement"

[39] Ahyousha Khan, "Strategic Non-Nuclear Weapons (SNNWs) and Deterrence Stability between Pakistan and India," *Strategic Perspectives*, Centre for International Strategic Studies AJK, accessed July 15, 2025, https://strategicperspectives.cissajk.org.pk/strategic-non-nuclear-weapons-snnws-and-deterrence-stability-between-pakistan-and-india/.
[40] Ibid.
[41] Keith B. Payne, *Maintaining Deterrence in the Era of Great Power Competition,* (Fairfax, VA: National Institute Press, 2020); Acton, *Escalation through Entanglement*.

to describe how a US-Russian conflict might escalate when NATO, in a conflict, could attack Russia's nuclear forces' vital conventional assets, such as early-warning radars, with non-nuclear weapons.[42] Recently, this term has been revitalized by the work of James Acton, who has discussed the entanglement of nuclear with non-nuclear in two ways. Firstly, weapons are entangled because the systems involved are typically dual-use, enabling both nuclear and conventional operations, and secondly, technological developments have increased their vulnerability to conventional attacks. Escalation could be caused by the Entanglement, because, during a conventional conflict, nuclear C3I systems of any of the adversaries could be severely degraded, as parties involved might have strong incentives to attack dual-use or dual-capable systems to achieve a conventional objective.[43]

The dual nature of many SNNWs, particularly precision strike missiles, space-based ISR systems, and cyber capabilities, means that an attack on one of these components could be perceived as the beginning of a nuclear attack. Lieber and Press argue that the intertwining/intermingling of conventional and nuclear C2 systems magnifies the danger of misinterpretation during crises.[44] James Acton called this misinterpretation "misinterpreted warnings.[45] Another potential escalation pathway arises when a state adhering to a damage-limitation doctrine depends on advanced C3I2 to firstly, locate and

[42] James M. Acton, "Why Is Nuclear Entanglement So Dangerous?" Carnegie Endowment for International Peace, January 23, 2019, https://carnegieendowment.org/posts/2019/01/why-is-nuclear-entanglement-so-dangerous?lang=en
[43] Ibid.
[44] Keir A. Lieber and Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security*, Vol. 41, No. 4 (2017), pp. 9–49.
[45] James M. Acton, "Escalation Through Entanglement: How the Vulnerability of Command-and-Control Systems Raises the Risks of an Inadvertent Nuclear War," *International Security*, Vol. 43, No. 1 (Summer 2018), pp. 56–99, https://carnegieendowment.org/posts/2019/04/escalation-through-entanglement-how-the-vulnerability-of-command-and-control-systems-raises-the-risks-of-an-inadvertent-nuclear-war?lang=en

neutralize an enemy's strategic assets and its nuclear forces while simultaneously defending itself through missile defense systems. States might believe that it could not carry on successful damage-limitation attack because of rapid progress of conflict into the nuclear domain during a conventional conflict, subsequently, it could launch a preemptive counterforce action by taking out adversary first, this action is different from crisis instability, which is based on the vulnerability on ones' own self, instead it is motivated by keeping adversary vulnerable.[46]

In the South Asian context, India's pursuit of counterforce capabilities and the integration of space and cyber domains into its operational plans make it increasingly difficult for Pakistan to accurately assess India's intent. As Acton notes, the entanglement of nuclear and non-nuclear capabilities complicates an adversary's ability to discern intent, increasing the risks of inadvertent escalation. [47] Recently, the phenomenon of blurring the distinction between the conventional and the nuclear factor has been widely discussed among scholars. However, this "blurring" between conventional and nuclear warfighting systems was also widely studied during the Cold War, when the term "blurring" was used in texts to describe the "dual capability of war-fighting systems."[48] However, the defining feature of the emerging deterrence landscape is not just the dual capabilities of systems but the blurring of boundaries between conventional and nuclear systems and capabilities, including

[46] Ibid.
[47] Ibid.
[48] Richard Burt, "The Cruise Missile and Arms Control," *Survival*, Vol. 18, No. 1 (1976), pp. 10–17; Alexander R. Vershbow, "The Cruise Missile: The End of Arms Control?" *Foreign Affairs*, Vol. 55, No. 1 (1976), pp. 133–46.

dual-capable warfighting systems, C3 and ISR systems, and the doctrines and strategies of states. As India integrates systems such as hypersonic missiles, precision-strike capabilities, and advanced surveillance architectures into its conventional forces, it is creating ambiguity. This indistinguishability introduces uncertainty during crises, creating vulnerabilities and escalation risks. Such uncertainties are especially dangerous in environments where doctrinal limits are unclear. [49] In South Asia, where both states already possess dual-capable delivery systems, India's nuclear doctrine is full of inherent contradictions, and its military doctrines aspire to manipulate SNNWs technologies to its benefit. Such actions undermine the mutual vulnerability and challenge the survivability-based stability on which Pakistan's posture depends. Moreover, in future crises, it would create a fog of technology, which could exacerbate the risks.

Conclusion

This paper has examined how India's SNNWs are increasingly shaping doctrinal thinking and influencing escalation dynamics in South Asia. By integration of non-kinetic and kinetic SNNWs, India is enhancing its ability to conduct preemptive and counterforce operations below the nuclear threshold. These developments signal a significant departure from traditional deterrence logic because technological integration, coupled with India's shifting posture toward a damage-limitation strategy, is challenging the survivability of nuclear arsenals. Analysis of nuclear deterrence and use of SNNWs, particularly the

[49] Julia Berghofer, Deterrence of Non-Nuclear Strategic Threats: The Case against Deterring New Technologies, European Leadership Network, July 23, 2024, https://europeanleadershipnetwork.org/commentary/deterrence-of-non-nuclear-strategic-threats-the-case-against-deterring-new-technologies/

May 2025 conflict, illustrates that while deterrence threats are still the ultimate currency of power, and nuclear weapons guarantee the existence and survivability of states, SNNWs introduce new risks of inadvertent escalation, crisis instability, and misperception because they open pathways where ultimate power cannot be used. Moreover, India's dual focus on offensive capabilities and missile defenses amplifies uncertainty for Pakistan because the dual nature of these weapons, along with the effects they cause on the psychology of leadership, further complicates crisis management, as their operational employment can be interpreted as ambiguous and sometimes gives false sense of superiority that preemptive strike is possible, likely increasing the risk of miscalculations. Therefore, there is an urgent need for regional risk-reduction mechanisms and strategic dialogue, where understanding the evolving role of SNNWs for deterrence stability needs to be addressed to achieve the broader goal of strategic stability in the India-Pakistan dyad. In this regard, it is essential to consider proposals for measures such as the Restraint Regime, which offers a broader scope and the potential to address and manage these risks.