Strategic Non-Nuclear Weapons (SNNWs) and Deterrence Stability between Pakistan and India

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Abstract

Strategic Non-Nuclear Weapons (SNNWs) have the potential to undermine nuclear deterrence by increasing the vulnerability of nuclear forces. This objective is accomplished by targeting adversary nuclear assets, altering escalation dynamics, shifting perceptions of vulnerability, and introducing new strategic variables into the deterrence calculus. This impact is particularly significant for smaller states with limited nuclear arsenals, but as technology advances, all states may eventually be affected. Deterrence relies on the survivability of nuclear systems to ensure retaliatory capability. In Pakistan-India's nuclear dyad, India's continuous advancements in the development, procurement, and deployment of SNNWs along with propensity for risk-taking —amidst ongoing hostilities, historical grievances, conflicts, and recurring crises—could provoke preemptive actions or more aggressive stances during confrontations. Therefore, this article explores the destabilizing dynamics of Pakistan-India deterrence caused by India's ongoing adoption of SNNWs and its subsequent political intent to employ these weapons. By utilizing qualitative methodology, this article concludes that these technologies have the potential to alter existing deterrence equations in South Asia.

Keywords: Pakistan, India, SNNWs, Strategic Stability, Nuclear Weapons

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Introduction

The development and use of Strategic Non-Nuclear Weapons (SNNWs) has led to the creation of what is being called a "third nuclear age," which is likely to bring about profound changes to the international nuclear order. With the crucial capacity to target an adversary's nuclear and strategic assets, these cutting-edge weaponry systems are distinguished by their high tech, non-nuclear nature, accuracy, and real-time intelligence guidance. Since existing deterrence equations are essentially based on the ability of nuclear weapon systems to survive in order to guarantee retaliatory punishment, SNNWs therefore have the potential to upset them. The primary concern is that an enemy could launch a non-nuclear first strike (or act of coercion) in the hopes of using a mix of offensive and defensive tactics to negate any counterattack. The issue that SNNWs present goes beyond their technological advancement and application; it also involves the opinions and judgments of analysts, policymakers, and decision-makers concerning their consequences for nuclear deterrence, especially in the worst-case situations.

It is anticipated that states with relatively small number of nuclear weapons are likely to be severely impacted by SNNWs. On the other hand, as these technologies spread and multiply throughout the medium to long run, their impacts will become more widespread. As part of the nuclear dyad between Pakistan and India, India's continued progress in the development, acquisition, and use of SNNWs may prompt proactive measures or more assertive stances in times of war, given the continuous hostilities, historical grudges, and crises. The likelihood of error and unintentional escalation has increased in this scenario.

Furthermore, these risks are made worse by the lack of confidence-building measures (CBMs) or strategic risk reduction measures between Pakistan and India. Indian policy documents, military doctrines, policy statements, military agreements, and a growing tendency to engage in risk-taking behavior below the nuclear threshold indicate an increasing threat to nuclear stability in the region. This evolving landscape necessitates careful deliberation and analysis to mitigate the heightened risks within the nuclear environment.

In their study titled "Strategic Non-Nuclear Weapons and the Onset of a Third Nuclear Age" Benjamin Zala and Andrew Futter state that defining factor of this new nuclear age (third nuclear age) would be not only nuclear geopolitics, risks, crises, deployment, postures, balances,

arms control and non-proliferation but also the developments in SNNWs capabilities as by nuclear weapons.[2]

These technologies change the dynamics of nuclear deterrence from nuclear punishment to nuclear denial and blurring the distinction between offense and defense. In current nuclear age, possession of a range of SNNWs by an adversary would be more important than their nuclear capabilities in shaping state decision making on nuclear force structures, doctrines and deployments. Notably, previous scholars have acknowledged that the adoption of SNNWs by smaller states involved in regional nuclear confrontations, could significantly impact their overall deterrence equations. However, there is a gap in the literature related to India's investment in SNNWs.

Thus, this study aims to address this gap by investigating the implications of India's substantial investments in SNNWs on South Asian deterrence dynamics. It also seeks to highlight India's policy orientation towards leveraging these weapons to mitigate mutual vulnerability, a situation that could undermine deterrence stability between India and Pakistan. Furthermore, it also aims to understand the implications of SNNWs on regional nuclear dyads. This article adopts the qualitative methodology based on secondary sources and is structured into three parts.

This study is organized in the following way. Firstly, it will investigate into India's SNNWs, analyzing technological advancements, investments, types of weapons, and the state's strategic focus. Secondly, it will argue how India's development of these weapons undermines strategic calculations with Pakistan, examining Indian doctrinal and policy intentions, the adversarial relationship, alliance dynamics, leadership behavior in domestic politics, and arms build-up dynamics. At last, it provides the conclusion of the study.

Conceptual and Historical Understanding to Strategic Non-Nuclear Weapons (SNNWs)

The term SNNWs is often interchangeably used with "advanced conventional weapons," "strategic conventional weapons"[3] and "non-nuclear strategic weapons," "conventional weapons," "strategic

[2] Andrew Futter and Bilyana Zala, "Strategic Non-Nuclear Weapons and the Onset of a Third Nuclear Age," *European Journal of International Security* 6, no. 3 (2021): 257–77, https://doi.org/10.1017/eis.2021.2.
[3] James M. Acton, "Russia and Strategic Conventional Weapons: Concerns and Responses", *Non-Proliferation Review* 22:2 (2015), https://www.tandfonline.com/doi/full/10.1080/10736700.2015.1105434.

conventional weapons"[4] and "non-nuclear strategic weapons." SNNWs can be used under circumstances for "strategic consequences." Scholars who have studied these weapon systems believe they are inherently different from other non-nuclear weapons that lack strategic significance and cannot achieve the state's strategic objectives.[5]

In order to fully appreciate the potential of SNNWs, it is necessary to understand what is meant by the word "strategic." "Strategic" in military studies refers to everything that can match objectives with means to accomplish a political purpose. This particular meaning of "strategic" is derived from Clausewitz's explanation of strategy and strategic objectives. In the words of Clausewitz "Tactics is the science of securing a victory through the employment of military forces in battle; strategy is the science of achieving the aim of the war through the linkage of individual battle."[6]

Colin Gray defines strategy as "the application of force to achieve policy objectives," while General André Beaufre describes it as "the art of managing conflicting wills through the use of force."[7] The term "strategic" is crucial in modern military divisions of warfare, which are categorized into three broad levels: strategic, operational, and tactical. At the strategic level, military actions are aligned with national policy objectives, directly influencing the outcomes of the war.[8] This level includes planning of warfare, policy guidelines and preparation of all instruments required to successfully wage a war. With the advent of nuclear weapons, the term "strategic" has been specifically used to refer to matters involving nuclear capabilities, which have broader national implications rather than just localized, tactical impacts. According to scholars during the Cold War, "strategic offensive weapons" was the term used for the missile systems that had broader range in 1970's during the negotiations on Strategic Arms Limitations Treaty (SALT)

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[4] James M. Acton, "Russia and Strategic Conventional Weapons: Concerns and Responses", *Non-Proliferation Review* 22:2 (2015), https://www.tandfonline.com/doi/full/10.1080/10736700.2015.1105434.

[5] Fabian Hoffman and William Alberque, "Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?," *The International Institute for Strategic Studies*, (March 2022), 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 , accessed December 13, 2023).

[6] Donald Stoker, "What's in a Name? Clausewitz's Search to Define "Strategy," *Military Strategy Magazine*, 5(2), https://www.militarystrategymagazine.com/article/whats-in-a-name-clausewitzs-search-to-define-strategy/. accessed May 10, 2024

[7] Ibid., 34.

[8] Maxwell AFB, "Three Levels of War", *Air and Space Power Mentoring Guide*, 1, https://faculty.cc.gatech.edu/~tpilsch/INTA4803TP/Articles/Three%20Levels%20of%20War=CADRE-excerpt.pdf, (accessed on 27 December, 2023)

I and II.[9] Therefore, we can say that the evolution of the terms "strategy" and "strategic" reflects their increasingly complex and high-level roles in military and political contexts. Initially focused on linking battles to achieve war aims (as per Clausewitz), these terms have come to encompass national policy objectives and, with the advent of nuclear weapons, have gained specific connotations related to extensive national and global impacts.

To address the linkage between non-strategic and nuclear weapons, a study was conducted by the RAND organization, titled "The RAND Winter Study on Nonnuclear Strategic Weapons: Executive Summary," in 1984 that defined SNNWs as systems that could be used as an alternative to nuclear weapons and their destructive yield is lower by three times in most minimum way and in maximum range it is reduced by at least six to eight times.[10] The study explains that to compensate for their destructive yield in pursuance of strategic objectives these weapon systems have to excel in certain other areas, which include precision of weapon system vis-à-vis its target, capability of weapon system to actually exploit the vulnerabilities in the target systems and most importantly destructive energy in comparison to target.[11] As the technological revolution in precision-guided munitions (PGMs) became fully apparent during the Gulf War I, scholars were previously uncertain about the exact consequences or precise results of such technologies. This skepticism was evident in the Winter Study, where doubts regarding the effective utilization of these weapon systems were expressed.

According to Hoffman, in SNNWs "strategic" refer to capabilities that can target economic, social, and significant political assets within an adversary's territory, as well as having the credible ability to threaten or target the adversary's nuclear forces.[12] Furthermore, due to their different nature, these weapons systems are divided into kinetic and non-kinetic nature.[13] While discussing the kinetic and non-kinetic nature of weapon systems, Hoffman and Alberque have

[9] Herbert Scoville Jr., "Strategic Weapons and Their Control," *India International Centre Quarterly* 5 (3), 1978, 147–54.
[10] Carl H. Builder et al., "The RAND Winter Study on Nonnuclear Strategic Weapons: Executive Summary" (RAND Corporation, January 1, 1984), https://www.rand.org/pubs/notes/N2227.html.
[11] Ibid., 15.
[12] Fabian Hoffmann, "Strategic Non-Nuclear Weapons And Strategic Stability – Promoting Trust Through Technical Understanding," *Foundation Pour la Recherche Strategique*,(November 2021), available at: https://www.frstrategie.org/sites/default/files/documents/programmes/ (accessed December 13, 2023).
[13] Fabian Hoffman and William Alberque, "Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?," *The International Institute of Strategic Studies*, (March 2022), 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.

noted that weapons with kinetic capabilities can impact the physical realm through their destructive power, precision, and accuracy. On the other hand, "non-kinetic" effects of these technologies enable them to deny the electromagnetic and information networks to the adversary. These non-kinetic weapons systems include electromagnetic pulses, information – disinformation campaigns and computer operation networks/cyber operations. However, kinetic weapon systems include missile systems (cruise, ballistic and hypersonic), Ballistic Missile Defences (BMDs), unmanned aerial vehicles (UAVs) and also kinetic anti-satellite capabilities (that require the actual striking of satellite systems).

Lieber and Press in their paper "New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," state that today we are going through the massive technological revolution, where these weapon systems provide states with the ability to hit an adversary's nuclear facilities, weapon systems, and military infrastructure with precision and pinpoint accuracy. By relying on Intelligence, Surveillance, and Reconnaissance (ISR) capabilities, they negate the elements of hardening, redundancy, and concealment that were previously necessary for maintaining deterrence stability. In this context, it is important to understand that SNNWs are much more than just conventional counterforce weapons. These SNNWs are also defensive in nature and have the potential to target both counter-force and counter-value objectives. Unlike massive counterforce weapons, which are aimed solely at the adversary's military targets, SNNWs encompass a broader range of strategic capabilities. Furthermore, it is important to understand here that SNNWs have the capability to act in defense of the state as well. They have a significant role in maintaining defense of a state. Many of these weapons are of dual use nature, which also helps in establishing deterrence.

Conceptual Underpinnings of Nuclear Deterrence

The idea of nuclear deterrence rose to prominence in strategy and policy after the onset of the Col War. Researchers noted that the introduction of a distinct "hurt" and "victory" categories by nuclear weapons radically changed the tenets of state-to-state military relations. This change was promptly recognized by American leaders, and the US enjoyed a nuclear weapons monopoly from 1945 to 1949. Leading expert on nuclear deterrence Bernard Brodie pointed out that military establishments now played a different function. With the devastating power of nuclear weapons,

their main purpose was to prevent war, rather than to wage it. This change stemmed from the realization that using nuclear weapons could wipe out all of humanity.

Numerous scholars have focused on the evolution of nuclear deterrence theory. Nuclear deterrence theory, one of the main theories in international affairs, is based mostly on the Realism paradigm. It is said that applied realism is the father of deterrence.[14] Rationale behind deterrence lies on the probability of unacceptable use of force. The basic definition of nuclear deterrence is based on the premise that it is a demonstrated capability of a state, which must be credible enough to be communicated to the adversary that if it will take any "undesirable action", it will be facing unacceptable damage in response.

However, Kier A. Lieber and Daryl G. Press argued that deterrence is effective not merely due to the fear of annihilation, which has always existed, but because of the "stalemate" it creates. This stalemate occurs when both states possess nuclear weapons, leading to a situation where the possibility of mutual annihilation prevents either side from initiating conflict.[15] Thus, deterrence is fear of mutually assured destruction rather than just destruction. The theory of nuclear revolution explains the "stalemate" achieved through second-strike capability between nuclear rivals, which prevents war and conflict. Nuclear revolution theorists believe that nuclear deterrence provides states with a "defender's advantage," securing them from external aggression. Rooted in realism, this theory views the international system as anarchic, with states primarily seeking security against existential threats.[16]

Hence, this theory promotes the ideology that nuclear weapons create a condition of mutual vulnerability which lead to a stalemate where states are unable to defeat each other and such situation greatly reduced the international competition among states.

In his seminal work, "The Spread of Nuclear Weapons: The More May Be Better," Kenneth Waltz argued that nuclear weapons increase the cost of war in the eyes of adversaries, leading to restrained behavior. Waltz posited that the high costs associated with nuclear warfare discourage states from using these weapons, thereby reducing the likelihood of war among

[14] Zafar Iqbal Cheema, *Indian Nuclear Deterrence, its evolution, development and Implications for South Asian Security*, (Oxford: Oxford University Press, 2010), 378.
[15] Kier A. Lieber and Daryl G. Press, "*The Myth of the Nuclear Revolution, the politics in the Atomic Age*," (Cornell University Press: Kier A. Lieber and Daryl G. Press, 2020), http://www.jstor.org/stable/10.7591/j.ctvqc6jj1.
[16] Mark S. Bell, "*Nuclear Reactions: How Nuclear-Armed States Behave*," (New York: Cornell University Press, 2021). 15.

nuclear-armed states. He described nuclear weapons as an effective means of defensive deterrence, suggesting that their presence makes states more cautious. Furthermore, he emphasized that the effectiveness of deterrence depends on state's credible ability to use its nuclear arsenal.[17]

Scott D. Sagan, a deterrence pessimist, argues that nuclear deterrence is complex, and not all states can maintain stable deterrence. He emphasizes the need for new nuclear states to avoid war during transition, have reliable second-strike capability, and implement tight control mechanisms to prevent accidental or unauthorized use.

According to Lieber and Press, a situation of "stalemate" leads to five outcomes: no major war among nuclear powers, muted relative gains concerns, reduced value of alliances, muted arms races, and reduced value of strategic territory. However, Lieber and Press also raise a theoretical issue: can we assume that such a stalemate is easily achieved and maintained? They question whether this deterrence-induced stalemate, where states possess second-strike capability, is truly irreversible and applicable to both the conventional and strategic realms. The answer to this question is complex. Deterrence is a continuous process where states must constantly ensure the credibility of their deterrent capabilities. The emergence of new disruptive technologies has made it challenging for nuclear deterrence to effectively counter threats at conventional and sub-conventional levels. Additionally, the rise of non-nuclear threats at strategic level has prompted states to recalibrate their nuclear doctrines and policies. Moreover, in "muted arms race" under nuclear overhang states constantly avoid large-scale weapons races and instead participate in comparatively low-intensity and scale armaments competitions. States that engage in a muted arms race gradually advance and implement new technology or weaponry without significantly increasing the overall rate or scope of their military build-up. This idea is in contrast to a typical arms race, in which governments build up their arsenals quickly and extensively in reaction to perceived threats or acts by their enemies.

Implications of SNNWs on Deterrence Stability in 21st Century

Scholars have presented the historical context of development of SNNWs at the Cold War. After Cold War, SNNWs were highlighted due to the US desire to make sure that "prompt conventional global strike" program has missiles with capability to reach anywhere around the globe within few

[17] Kenneth N. Waltz The Spread of Nuclear Weapons: More May Be Better: Introduction, *The Adelphi Papers 1*, (1981):171, Doi 10.1080/05679328108457394.

seconds.[18] According to Benjamin Zala and Andrew Futter,[19] the situation today is complicated by the buildup and relative success of ballistic missile defenses in the 21st century. While the roots of ballistic missile defense systems trace back to the Cold War, their eventual success has only become evident in the 21st century.

Fabian Hoffman, explains that the rapid advancements in hit-to-kill capabilities during the mid-course and terminal phases have significantly changed the capabilities and implications of these systems.[20] With a circular error probability (CEP) of only a few meters, kinetic systems may now precisely target and destroy opposing capabilities. While these technologies were once exclusive to a small number of governments, Hoffman points out that quick advances in both the civilian and technical domains have made them available to nearly any state, complicating international order.

Due to the advancements in SNNWs states possessing conventional capabilities are now able to put states with nuclear capabilities in danger. The development of ballistic missiles by Iran is an intriguing subject in this instance, as the US and its regional allies in the Middle East view these missile systems as a threat, even though they have a numerical and qualitative advantage over Iran.[21]

According to Futter and Zala, SNNWs technology has matured and become widespread among nuclear and non-nuclear states in the 21st century. These technologies offer the capability to threaten an adversary's nuclear and associated systems, thus impacting their deterrent capabilities.[22] The fact that nuclear deterrent systems are under new threat is relevant in this context. The new development is that states can now make these threats using non-nuclear weapons due to significant advancements in precision, ISR systems, state-of-the-art sensing,

[18] James M. Acton, 'Silver Bullet? Asking the Right Questions about Conventional Prompt Global Strike,' *Carnegie Endowment for International Peace*, (September 2013), https://carnegieendowment.org/files/cpgs.pdf (accessed January 10, 2024)
[19] Andrew Futter and Benjamin Zala, "Strategic non-nuclear weapons and the onset of a Third Nuclear Age," *European Journal of International Security* 6(3) (2021): 257-277.
[20] Fabian Hoffman and William Alberque, "Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?," *IISS*, (March 2022), 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 (accessed December 13, 2023).
[21] Antony Blinken, Press Statement, The United States' Commitment to Countering Iranian Weapons Development and Proliferation, October 18, 2023, *U.S. Department of State*, https://www.state.gov/the-united-states-commitment-to-countering-iranian-weapons-development-and-proliferation/
[22] Andrew Futter and Benjamin Zala. "Strategic non-nuclear weapons and the onset of a Third Nuclear Age," *European Journal of International Security* 6(3) (2021): 257-277.

tracking, and processing capabilities. As a result, there is an increased threat among the nuclear powers of disarming first attack.

With advancements in precision-guided quantum technology processing capabilities, another significant factor enhancing the role of SNNWs in the 21st century, known as the third nuclear age, is the development of computer network operations (CONs) or cyber offensives. Unlike the Cold War, states possess vast and sophisticated cyber systems, which could create disruptions in nuclear supply chains, military systems, and interference with early warning command, control, and communication (C3) systems during conflicts.

As nuclear weapons are crucial for deterrence, the primary concern with cyber offensive lies in its potential to disrupt command and control systems. However, it is essential to recognize that CONs penetrate deeper, posing risks to societal, economic, and structural aspects of a state or society, which means that they have the ability to deny the adversary the use or potential advantageous use of its own cyberspace in an event if a state decides to wage a war against its adversaries. In cyber doctrines of states, the component of denial of services is of foremost importance.

Moreover, in the cyber domain, the difficulty is that there is no retribution or direct retribution which makes the cyber deterrence most difficult, among all other deterrents. Hoffman focuses on the rapid impacts of technology where because of their speed of kinetic capabilities and increase in the processing by the weapon systems have reduced the time-frame for decision making.[23] This reduced time will put burden on decision makers to take fast decisions during crisis, which could result in any accident or misperception that affect the broader strategic stability and most importantly challenge the dynamics of crisis stability.

Inter-linkage of Technology, Doctrines and Policies

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,

[23] Fabian Hoffmann, "Strategic Non-Nuclear Weapons and Strategic Stability – Promoting Trust Through Technical Understanding," *Foundation Pour la Recherche Strategique*, (November 2021), https://www.frstrategie.org/sites/default/files/documents/programmes/ (accessed January 24, 2024)

others aim to maintain hegemonic positions, and some develop technologies for domestic political reasons.

When states develop doctrinal nuances and policies for integrating these technologies, they can reduce strategic ambiguity, a positive step given their inherently dual-use nature. However, providing doctrinal and policy cover for technological advancements can also lead to arms races or buildup policies. For nuclear states, certain technologies, such as ballistic and cruise missiles, have long been integral to their strategic and nuclear programs, ensuring their dual-use nature remains embedded in strategic doctrines. This situation is evident in the India-Pakistan context, complicating efforts to eliminate ambiguity and potentially leading to misperceptions and misinterpretations.[24] Strategic non-nuclear weapons can yield significant strategic effects. However, their dual-use 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 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 crisis, exacerbating the risk of misinterpretation.[25] 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." This raises the dilemma of whether these systems should always be ready or never be used accidentally or without authorization.[26] 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.

Strategic Non-Nuclear Weapons: Indian Technological and Doctrinal Developments

[24] Fabian Hoffman and William Alberque, "Non-Nuclear Weapons with Strategic Effect: New Tools of Warfare?," *IISS*,(March 2022), 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, (accessed January 24, 2024).
[25] 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/.
[26] Ibid., 28.

The hypothesis of undertaken study suggests that India's advancements in SNNWs, driven by aggressive policy intent, could impact deterrence stability vis-à-vis Pakistan. Therefore, the initial focus on SNNWs centers on kinetic capabilities, notably India's missile technologies. Indian missile program was initiated under Integrated Guided Missile Development Program (IGMDP) in 1983.[27] Indian military has wide range of missile systems that include missiles which provide both counter-value and counter-force options. Indian missile inventory is based on short range missile systems, intermediate range ballistic missiles (IRBM) capable of carrying all kind of warheads and intercontinental ballistic missiles (ICBM) and multiple independently targetable re-entry vehicles (MIRVs). Small range missile systems claim to carry conventional warhead and can also be used as counter-force weapons. India has a wide range of short-range missiles which include land-based surface to surface, Prithvi I with the range of 150 kilometers and Prithvi II with the range of 250 kilometers.[28]

India's arsenal includes the Dhanush, a short-range sea-based missile system with a range of 350 kilometers. In addition, India has developed supersonic cruise missiles known as BrahMos BI and BrahMos BII, each with a range of 290 kilometers, capable of being launched from air and sea platforms. Furthermore, the country possesses the K-15 Sagarika, a sea-based short-range ballistic missile with a range of 750 kilometers, which can be launched from submarines.

In the realm of SNNWs, a significant development is India's move towards canisterization of these missile systems. Canistrisation refers to a technology where missiles are stored and transported in a ready-to-launch state. Notably, India tested the Agni Prime missile system in 2021, demonstrating this capability.[29] Furthermore, there are reports that India plans to replace its Prithvi I missile system, which has a range of 150 kilometers, with the short-range Prahaar missile system, first tested in July 2011.[30]

Moreover, India is investing in hypersonic cruise missile technology and is among the few countries globally that have successfully tested hypersonic scramjet engines, with a notable test

[27] Integrated Guided Missile Development Program, *BrahMos Aerospace*, https://www.brahmos.com/content.php?id=10&sid=25 accessed May 10, 2024.
[28] Prithvi- 1, Missile Threat Initiative, *CSIS*, https://missilethreat.csis.org/missile/prithvi/, (accessed May 10, 2024).
[29] Korda Matt, "Indian Test-Launch of MIRV Missile Latest Sign of Emerging Nuclear Arms Race," *Federation of American Scientists* (blog), accessed May 15, 2024, https://fas.org/publication/indian-test-launch-of-mirv-missile-latest-sign-of-emerging-nuclear-arms-race/.
[30] "Prithvi-I/II/III," Missile Threte, Missile Threat, April 23, 2024, https://missilethreat.csis.org/missile/prithvi/.

conducted in 2020.[31] There is a wide range of literature that believes that Indian short range missile systems such as Brahmos, Prithvi and Nirbhay are also ideal for carrying both kinds of warheads, which includes nuclear and conventional.[32]

Their ability to carry conventional and nuclear weapons create ambiguity regarding whether these weapon systems are conventional or strategic. SNNWs often blur the line between conventional and nuclear or strategic forces. This confusion is evident in case of India's missile force, which is primarily intended to ensure deterrence. However, rapid technological advancements complicate understanding the objectives of these weapon systems.

India's offensive space capabilities, particularly in kinetic SNNWs, are noteworthy. In 2019, India demonstrated its Anti-Satellite (ASAT) capability by successfully targeting its satellite in Low Earth Orbit (LEO), raising concerns about orbital debris. This test underscored India's ability to neutralize satellites.

Beyond ASAT weapons, India's space capabilities enhance its military's precision strike capabilities, ISR capacities, and real-time information access. India's military space program, managed by the Defense Space Agency (DSA), includes at least eight designated military satellites. Moreover, India's collaboration with the United States, through foundational defense agreements, further augments its space capabilities, providing real-time intelligence and satellite imagery, is a significant concern for Pakistan.

Another important SNNWs in case of India is its Ballistic Missile Defense (BMD) system. Indian ballistic missile defense shield was initially started as the indigenous program, where technological know-how was learned from the US through different exchange programs. However, indigenous BMD of India is based on two layers, which include Prithvi Air Defense (PAD) and Advance Air Shield (AAD).[33] Furthermore, India has also acquired different missile defense

[31] Kelsey Davenport, "India tests hypersonic missile," *Arms Control Association*, (October 2020) https://www.armscontrol.org/act/2020-10/news/india-tests-hypersonic-missile, (accessed December31, 2023).
[32] Dr. Zafar Khan, "India's Evolving Missile Development Strategy in South Asia: Motivations and Challenges," *Strategic Thought* 4, no. 1 (2022): 52–73, https://strategicthought.ndu.edu.pk/site/article/view/77.
[33] Amber Afreen Abid, "Indian Ballistic Missile Defence System and South Asian Deterrence Equation," *Strategic Thought* 4 (1) (2022), 136-54. https://strategicthought.ndu.edu.pk/site/article/view/82.

systems from Israel and Russia. Besides, India recently has also tested its ship-based BMD system off the coast of Odisha in the Bey of Bengal.[34]

In terms of UAV capabilities, India is lagging behind Pakistan in South Asia. In case of UAVs, India is in the process to import or try to acquire some UAVs from the USA. India is trying to procure the MQ 9B Predators from the US and Heron from Israel. It has recently inducted Guardian drones from the US for its Navy. In recent conflicts, UAVs have shown their efficacy, whether we see the case of Nagorno Karabakh conflict between Azerbaijan and Armenia or Ukraine conflict where drones have been utilized against each other very effectively. These lessons of effectiveness of UAVS are learned and observed effectively, therefore, now India also ventured into development of its UAVs, known as Tapas BH, which is produced by Defence, Research and Development Organization (DRDO).[35]

In terms of non-kinetic technologies, such as Artificial Intelligence (AI), it is estimated that Indian markets have potential of $50 billion investment in venture market. Moreover, DRDO has established a special Center for AI and Robotics (CAIR), which is aimed at development of the AI enabled military systems that facilitate the decision making, visual information, and tracking and object identification. India has 200 Dakash Robotics, developed for the defusing of bombs in dangerous situations.[36] India is collaborating with Japan and the US in this domain as well.

The effectiveness of these technologies in delivering strategic results and India's dubious NFU posture engender threats for Pakistan. Indian nuclear doctrine has always been an open-ended document with a lot of lacunas and jargons, which gave Indian policy makers a huge space to stir the policy in any direction that seems favorable to them. Vipin Narang, in this regard, at Carnegie Endowment's International Nuclear Policy Conference in Washington, argued that India's No First Use policy has "far greater flexibility" than generally recognized.[37] He expressed these views based on what he deduced from the book by former National Security Advisor, Shivshankar Menon. Narang argued that Menon's view reflects that India could be adopting counterforce

[34] Adhitya Karishna Menon, "India Conducts First Test of New Ship-Based BMD System," *Naval News*, (April 25, 2023), https://www.navalnews.com/naval-news/2023/04/india-conducts-first-test-of-new-ship-based-bmd-system/.
[35] RSN Singh, "A Drone in Military Revolution," *Indian Defense Review*, February 10, 2023, https://www.indiandefencereview.com/news/drone-a-revolution-in-military-affairs/.
[36] Ahyousha Khan, "AI in South Asia and Implications for Pakistan*," Eurasia Review*, October 2021, https://www.eurasiareview.com/19102020-artificial-intelligence-in-south-asia-and-implications-for-pakistan-oped/.
[37] Alicia Sanders-Zakre and Kelsey Davenport, "Is India Shifting Nuclear Doctrine?" *Arms Control Association*, May, 2017, Available at: https://www.armscontrol.org/act/2017-05/news/india-shifting-nuclear-doctrine.

strategy as opposed to counter-value strategy.[38] This argument was again supported by Clary and Narang in their paper, "India's Counterforce Temptations: Strategic Dilemmas, Doctrine and Capability", where it is argued that India has relinquished the policy of NFU, if not then why it has invested heavily in building a diverse, accurate and responsive nuclear delivery vehicles at higher state of readiness; and investment and procurement of wide array of surveillance platforms and ballistic missiles defenses.[39] Both authors further added that pursuit of these technologies by India is not the result of any strategic drift or strategic conclusion but reflects conscious pursuit of India's policy makers to have more flexible options, beyond counter-value targeting. In this regard, SNNWs are an effective choice to consider due to their precision strike and attaining strategic objectives without even using nuclear weapons.

In addition, Indian strategic thinking, post-Kargil war, has been to utilize the option of limited conflict against Pakistan. In response to the 2001-2002 military standoff after the attack on Indian Parliament, 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 came up with Cold Start Doctrine (CSD) also known as swift operation doctrines. Initially, India denied that there is any such doctrine; however, its force posture and nearly after a decade, India's ex-Chief of Army Staff, Gen. Bipin Rawat (late) accepted, during the press conference, the existence of the doctrine of provocative operations.[40] The doctrine presumed that to achieve significant military objectives against Pakistan, India would deploy Integrated Battle Groups (IBGs) along the border to conduct operations 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 of 2017.[41]

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[38] Frank O' Donnell and Debalina Ghoshal, "Managing Indian deterrence: pressures on credible minimum deterrence and nuclear policy options," *The Nonproliferation Review*, Vol.25, no.5-6 (2018), Available at: https://sci-hub.se/https://www.tandfonline.com/doi/full/10.1080/10736700.2019.1565187.

[39] Christopher Clary and Vipin Narang, "India's Counterforce Temptations: Strategic Dilemmas, Doctrine and Capability," *International Security*, Vol. 43, no.3 (2018), available at: https://www.belfercenter.org/sites/default/files/files/publication/isec_a_00340.pdf.

[40] Kadayam Subramanian, "India's new army chief and 'cold start' military doctrine," Asia Times, February 09, 2017, https://asiatimes.com/2017/02/indias-new-army-chief-cold-start-military-doctrine/ accessed May 10, 2024.

[41] 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.

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 2018 Land Warfare Doctrine further accentuated the importance of the integration of AI into military systems. In the context of conflict with China and Pakistan, India has intensified efforts to modernize its military and incorporate advanced technologies. In 2019, during a speech, the ex-Indian Army Chief General Bipin Rawat emphasized the critical need for timely adoption of AI in military systems.

Implications for South Asian Deterrence Stability

To analyze the significance of SNNWs, it is crucial to recognize the anarchic nature of the international system. Decisions regarding the deployment and use of nuclear weapons and strategic non-nuclear forces hinge largely on how adversaries perceive each other's capabilities. In the context of India and Pakistan's nuclear dynamics, India's acquisition or deployment of SNNWs would introduce ambiguity, complicating Pakistan's ability to differentiate between conventional and nuclear threats. This ambiguity, blurring the distinction between conventional and strategic weapons, could lead to misinterpretations and misperceptions, particularly in times of existing uncertainties.

The introduction of such weapons could further obscure distinctions during crises, potentially leading to miscalculations or unintended escalations. Indian development and acquisition of BMDs, ASAT capabilities, and cruise missiles could foster a false sense of security and confidence, potentially leading to miscalculations in assessing Pakistan's response options. Moreover, India's SNNWs capabilities, particularly in ISR, pose a threat to Pakistan's nuclear deterrent by compromising its concealment capabilities. Although, Pakistan's official policy is to use nuclear weapons as "weapons of last resort" but the threat of counter-force strike would invoke the "use it or lose it" dilemma for Pakistan.

In addition to India's technological advancements, India's offensive policies and its disregard for nuclear stalemate also play a role in this dilemma. The geographical proximity between both states, which reduce the time of decision making in crisis situation. These technological developments in India are guiding the adoption of offensive postures. Despite Indian

official NFU policy, it is an open secret that Indian nuclear posture is in contradiction with its declared nuclear doctrine.

The development and acquisition of SNNWs pose challenges to regional arms control efforts as well. Despite Pakistan's stated policy to avoid regional arms races,[42] South Asia's deterrence dynamics adhere to an action-reaction paradigm. Consequently, when India's actions impact deterrence stability, Pakistan seeks to achieve parity, likely by investing in strategic non-nuclear domains such as satellite and ISR capabilities. SNNWs enable India to pursue military and political objectives below the nuclear threshold, reflecting the diverse motivations of Indian political leadership.

In response, Pakistan must strengthen its credible deterrence vis-à-vis India to enhance overall deterrence stability. To achieve this, Pakistan needs to eliminate any doubts in the minds of Indian leadership about its willingness to use conventional force in the event of aggression. Pakistan's adoption of a quid pro quo plus policy following the Pulwama/Balakot crisis exemplifies this approach. This strategy will help deter potential Indian misadventures and reinforce the credibility of Pakistan's conventional deterrence.[43] During these exercises, the focus must be to enhance jointness and integration among different services and capabilities of the military. Pakistan is conducting conventional military exercises like Azm-e-Nau, New Concept of War Fighting (NCWF), High Mark, Strike of Thunder, and Sea Spark to enhance synergy among its three military services and bolster combat readiness along the eastern border.[44] As SNNWs are based on the precision strike capability, ISR, stealth, CEP and computerized system are crucial in this regard: thus, it is essential for Pakistan to invest and build indigenous ISR and space-based capabilities.

Conclusion

In the context of South Asia, where India and Pakistan navigate a delicate nuclear dyad, the deployment or acquisition of SNNWs by India along with its ambiguous nuclear doctrine and

[42] Naveed Siddiqui, Pakistan is against an arms race in the region: FO, *Dawn,* October 11, 2018, https://www.dawn.com/news/1438344, accessed May 10, 2024.
[43] Ali Zia Jaffery, "Enhancing Deterrence Stability on the Subcontinent: The Case for Conventional Deterrence," *Stimson*, (April 8, 2020), https://www.stimson.org/2020/enhancing-deterrence-stability-on-the-subcontinent-the-case-for-conventional-deterrence/.
[44] Maimuna Ashraf, "Pakistan's Consolidating Conventional Deterrence: An Assessment," *South Asian Voices*, February 14, 2020, https://southasianvoices.org/pakistans-consolidating-conventional-deterrence-an-assessment/.

offensive policy choices would make it challenging for Pakistan to distinguish between conventional and nuclear threats. This ambiguity poses risks of misinterpretation and unintended escalation, emphasizing the need for clear communication, transparency, and confidence-building measures between the two nations. Therefore, Pakistan must take steps to ensure credible deterrence. SNNWs hold potential for enhancing deterrence in certain contexts, their introduction in South Asia requires careful management to ensure deterrence stability.