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# The Impact of the Pakistan-India Nuclear Arms Race on Regional Security in South Asia

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**Abstract**. *This review paper is devoted to the nuclear arms race between Pakistan and India, focusing on the areas in which it is taking place and the consequences arising from it. The purpose of this study is to reveal the dynamics of nuclear armament and its impact on related areas and threats to regional security. Also, an attempt was made to cover the consequences arising from the recent crisis within the framework of the study. The issue of the nuclear arms race is approached from the perspective of the security dilemma and the action-reaction model theory, and it is emphasized that this process is a negative phenomenon both regionally and globally. At the same time, we consider this topic to be extremely relevant, and we consider it appropriate to refer to it again and again over time, to study the transformation of this process.*

**Key words**: *Nuclear arms race, security dilemma, security trilemma, action-reaction model, conventional armament, nuclear doctrine, Cold Start doctrine, tactical nuclear weapons, nuclear optimization theory.*

**Introduction:** One of the most serious threats to regional security in South Asia is the nuclear arms race between Pakistan and India. This issue is the most acute regional problem in the world and has deep historical, political and strategic roots. The arms race between these two countries, taking place in both conventional and nuclear weapons, is considered a threat to security not only regionally but also globally. The problems in Pakistan-India relations date back to the partition of British India, which was marked by bloody conflicts and territorial disputes. During this period of confrontation, the parties fought three full-scale wars (1947-1948, 1965, 1971) and one Kargil conflict (1999). The Kargil conflict was the first serious crisis after both sides acquired nuclear weapons, which was resolved by the intervention of external powers. After that all subsequent conflicts have taken the form of limited conflicts, almost always with the threat of nuclear escalation. The arms race that we are now considering is taking place in this context of intense confrontation. This process is influenced by many factors: from the actions of the opponent to the achievements of technological development, the geopolitical and geostrategic situation, as well as the influence of external forces. At the same time, the nuclear arms race in the region is not only leading to an increase in the number of nuclear warheads, but also contributing to the modernization of conventional weapons arsenals, the development of advanced nuclear delivery systems — particularly ballistic missile systems and their associated launch and transportation platforms (including aircraft, land vehicles, ships, and submarines) — as well as the integration of related industries that support and maintain these systems.

**Literature review and methods:** This study primarily draws upon relatively recent research conducted by Pakistani and Indian scholars. In addition, analyses and reports published by prominent

think tanks — including SIPRI, Global Firepower, the Stimson Center, and the Arms Control Association — as well as relevant media sources, were consulted to ensure a comprehensive understanding of the subject. The research predominantly employed qualitative and content analysis methods. Moreover, the historical method was also utilized, with particular attention given to the early stages of nuclear weapons development.

**Results and discussion:** Most researchers cite the security dilemma concept as the theoretical foundation of arms races. This concept was first introduced and elaborated by John Herz in his article ''Idealist Internationalism and the Security Dilemma[1]''. According to Herz, measures taken by a state to enhance its own security tend to reduce the security of other states. The anarchic nature of the international system leads to mutual distrust among states. As a result, even peace-oriented states may appear threatening to others when they attempt to strengthen their own security — ultimately triggering arms races, conflicts, and further mistrust.

The concept of the arms race itself is defined by Barry Buzan as a "self-reinforcing military competition between states" in which each state's efforts to defend itself are perceived as a threat by others, thus escalating tensions. In our view, a broader and more nuanced definition is provided by Colin Gray, who describes an arms race as a process in which "two or more parties, perceiving themselves to be in adversarial relations, rapidly increase or upgrade their weapons arsenals, shaping their military posture with reference to the past, present, and anticipated future military and political behavior of the opposing side".[2]

According to Pakistani researcher N. Salik, the arms race can be driven by three theoretical models:

1) Action–Reaction Model: This model suggests that states increase the quantity and quality of their armaments in response to perceived threats posed by other states. It implies that the driving forces behind the dynamics of armament are primarily external factors, such as the security behavior of rival states.

2) Domestic Structure Model: The core idea of this model is that the stimuli for arms competition are generated by internal factors. These include the influence of various actors on decision-makers, such as the corporate interests of research and defense production organizations, bureaucratic competition between agencies, and domestic political considerations.

3) Technological Imperative Model: This model is based on the widely accepted notion that the most significant factor behind the arms race—particularly nuclear arms races—is technological advancement. According to this view, the continuous development and sophistication of weaponry and military research technologies inevitably leads to arms build-up, where the pace and direction of the race are driven not by political decisions, but by the momentum of technological progress itself.[3]

The regional security environment in South Asia is shaped by a complex web of tensions rooted in the unique nature of inter-state relationships. On one hand, there is the enduring rivalry between Pakistan and India; on the other, India maintains a distinct relationship with its powerful neighbor China, which itself harbors great-power ambitions. Additionally, China's intensifying strategic competition with the United States — particularly in the technological and military domains — adds further complexity to the regional dynamics. As China continues to expand its military and technological capabilities in pursuit of global power parity with the United States, India, which faces unresolved border disputes and growing Chinese influence in South Asia, feels increasingly threatened. In response, India undertakes measures to close the strategic gap with China. However, these efforts are perceived by Pakistan as a direct threat to its own security. This chain of actions and reactions triggers a cycle of continuous military build-up among all the regional players. As many analysts have noted, India's nuclear posture aimed at counterbalancing China inadvertently drew

[1] Herz J. H. Idealist Internationalism and the Security Dilemma. World Politics, 2 (2), 1950. - Pp. 157-180.
[2] Salik N. Strategic Stability in South Asia. Challenges and Prospects. Islamabad Papers, 2016. Nuclear Paper Series No.3. - P. 5.
[3] Salik N. Strategic Stability in South Asia. Challenges and Prospects. Islamabad Papers, 2016. Nuclear Paper Series No.3. - P. 6-7.

Pakistan into the arms race. Analysts studying the region describe this situation not merely as a security dilemma, but as a security trilemma — a dynamic unique to what has been termed the "Second Nuclear Age"[4], where the actions of any one major player affect not just one rival, but reverberate through the entire regional security structure.[5]

It is important to note that since gaining independence, Pakistan has consistently sought to build a military capable of counterbalancing India. In the late 1960s and early 1970s, Pakistani leadership began to recognize the trajectory of India's nuclear program and responded by initiating its own nuclear development efforts. A major turning point in this process was Pakistan's defeat in the 1971 war and the subsequent secession of East Pakistan, which was heavily influenced by Indian intervention. This significant political and military event in South Asian history provided a powerful impetus for Pakistan to pursue a nuclear weapons capability. Following the 1971 crisis, then-President Zulfikar Ali Bhutto famously declared: "We are fighting a thousand-year war with India. Even if we have to eat grass, we will make a nuclear bomb."[6] This statement reflected the perception of a prolonged strategic rivalry with India. Indeed, in May 1998, India conducted a series of nuclear tests, to which Pakistan responded shortly thereafter with its own tests. The strategic competition between the two countries continues to this day.

Another significant factor driving Pakistan's pursuit of a nuclear weapons program was India's nuclear test conducted on May 18, 1974, known as the "Smiling Buddha," which was carried out under the guise of peaceful purposes. Later, in a 1997 interview, Raja Ramanna, the head of the Indian test team, acknowledged widespread suspicions that the 1974 test was, in fact, a weapons test.[7] Despite India's critical stance towards the global non-proliferation regime, it has long sought international nuclear cooperation on its own terms and developed the necessary infrastructure for a nuclear weapons program under the pretext of peaceful use. This process continues to the present day. With its colonial history, India had for many years viewed the nuclear non-proliferation regime with suspicion. Although it actively participated in negotiations related to the regime, India never fully committed to the relevant treaties. For example, between 1965 and 1968, India was actively involved in the committee drafting the text of the Nuclear Non-Proliferation Treaty (NPT) but ultimately refused to sign the treaty. Furthermore, in the mid-1990s, India played an active role in the Conference on Disarmament negotiations on the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and participated in all stages of drafting the treaty's text. However, India repeated its historical reluctance by not only refusing to sign the CTBT but also voting against its adoption in the United Nations General Assembly in 1996.[8]

Due to its strategic interests in countering the nuclear threat posed by China, the United States did not openly condemn the peaceful objectives claimed by India's nuclear program. Although the U.S. did not fully endorse India's approach, the Nixon administration officially stated that "India's nuclear test did not violate any agreements with the United States" and refrained from imposing direct sanctions on India. Furthermore, U.S. National Security Advisor Henry Kissinger curtailed internal

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[4] The term **"Second Nuclear Age"** is used to describe the global nuclear landscape and security environment that emerged after the end of the Cold War. Unlike the bipolar nuclear rivalry between the United States and the Soviet Union during the Cold War, this new era is characterized by a multipolar, complex, and uncertain nuclear order.

The concept was introduced and popularized by Paul Bracken in his 1999 book, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics*. Bracken argued that this new phase is marked by the spread of nuclear weapons to additional states, new strategic calculations, regional rivalries, and a less predictable global security structure.

[5] Salik N. Strategic Stability in South Asia. Challenges and Prospects. Islamabad Papers, 2016. Nuclear Paper Series No.3. - P. 7.

[6] Khan F., Eating Grass: The Making of the Pakistani Bomb. Stanford University Press, 2012, - P. 87.

[7] Xafiz N. The Legacy of India's Nuclear Weapons Test. November 2024. https://www.armscontrol.org/act/2024-11/features/legacy-indias-nuclear-weapons-test. (25.05.2025)

[8] Xafiz N. The Legacy of India's Nuclear Weapons Test. November 2024. https://www.armscontrol.org/act/2024-11/features/legacy-indias-nuclear-weapons-test. (25.05.2025)

discussions regarding sanctions and authorized the U.S. Atomic Energy Commission to continue supplying fuel to the Tarapur nuclear facility even after the test.[9]

Overall, India's 1974 nuclear test significantly intensified international efforts to prevent the proliferation of nuclear weapons. One of the major outcomes of this development was the establishment of the Nuclear Suppliers Group (NSG) - an organization created to enforce strict controls over the transfer of technologies and materials necessary for nuclear weapons development.[10]

India's nuclear tests were received with deep concern by Pakistan. Pakistani Prime Minister Zulfikar Ali Bhutto declared that the country would seek external protection against any nuclear threat or coercion. Later that year, Pakistan submitted a draft resolution to the UN General Assembly calling for the approval of a nuclear-weapon-free zone (NWFZ) concept for South Asia. Concerned about India's advancing nuclear program, Pakistan also urged the General Assembly to request India to refrain from any activities that could undermine the establishment of such a zone while its efforts to develop nuclear capabilities continued.[11] Notably, Pakistan had initially proposed the idea of a nuclear-weapon-free zone in South Asia much earlier, in September 1972, during the 16th session of the UN Conference on the Peaceful Uses of Atomic Energy held in Mexico. Interestingly, this proposal came just months after a secret meeting of leading scientists in Multan in January 1972, where a decision was reportedly made to develop a nuclear bomb.[12] This suggests that alongside publicly advocating for a nuclear-weapon-free zone, Pakistan was simultaneously discreetly developing its own nuclear program. The proposal helped Pakistan cultivate an image as a peace-loving state while potentially providing cover for its emerging nuclear ambitions.

India maintained a fundamentally different position on the issue. Firstly, it emphasized that any such decision regarding a nuclear-weapon-free zone (NWFZ) should be made based on a regional consensus among South Asian states. Secondly, from India's perspective, the presence of foreign military bases in the Indian Ocean rendered the idea of a nuclear-weapon-free zone - particularly for South Asia - impractical and unacceptable. India argued that South Asia could not be treated as a separate or isolated region for the purpose of establishing a NWFZ. Moreover, certain states in the region maintained strategic alliances with nuclear-armed powers - for example, Pakistan with the United States and India with the former Soviet Union — which, in India's view, extended the influence of nuclear weapons policies into South Asia. Instead of focusing on specific regions, India advocated for a global approach, proposing that the entire planet be declared a nuclear-weapon-free zone.[13]

Throughout the 1980s, Pakistan maintained its position on the establishment of a nuclear-weapon-free zone in South Asia. General Zia-ul-Haq reiterated this proposal during the 40th session of the UN General Assembly.[14] During this period, India's objections to the proposal became more comprehensive in scope. New Delhi increasingly emphasized the threat posed by the global nuclear arms race among the major powers, arguing that preventing nuclear war and halting vertical proliferation should be the primary focus of the international community. Issues related to nuclear arms control, particularly the horizontal proliferation of nuclear weapons, were considered secondary or of lesser importance. According to India, nuclear-weapon-free zones could not guarantee the security of non-nuclear states, since even a limited nuclear conflict would have catastrophic

[9] Clary, C. "U.S.-India Nuclear Relations: Strategic Considerations During the Cold War," *Journal of Strategic Studies*, 41(6), - P. 797-822.
[10] The Nuclear Suppliers Group: Its Guidelines, Origins, Structure, and Role. INFCIRC/539/Rev.8 Date: 28 July 2022. - P. 4.
[11] Kamal N. Nuclear Free Zone in South Asia: Pakistan's Proposals and Problems. Strategic Studies, Vol. 10, No. 3 (Spring 1987). - P. 51.
[12] Pande S. Nuclear Weapon-Free Zone in South Asia. Strategic Analysis: a Monthly Journal of the IDSA, February 1999 (Vol. XXII No.11)
[13] Kamal N. Nuclear Free Zone in South Asia: Pakistan's Proposals and Problems. Strategic Studies, Vol. 10, No. 3 (Spring 1987). - P. 52-54.
[14] Pande S. Nuclear Weapon-Free Zone in South Asia. Strategic Analysis: a Monthly Journal of the IDSA, February 1999 (Vol. XXII No.11).

consequences for regions far beyond the immediate area of confrontation, jeopardizing both security and development.[15]

Another key factor contributing to the arms race in the region is the growing asymmetry in conventional military capabilities. For years, Pakistan has sought to maintain a conventional balance with India; however, the strategic and material circumstances have not been in Pakistan's favor. According to experts, the military balance between Pakistan and India stands approximately at a ratio of 1:3 in land forces, 1:4.7 in naval power, and 1:3.7 in air forces. This significant disparity has led Pakistan to increasingly rely on its nuclear deterrent over the years. Pakistan views its nuclear arsenal as a counterbalance to India's conventional military superiority, recognizing that it cannot realistically match India's capabilities through traditional means alone.[16] The asymmetry between the two countries is clearly illustrated in the following comparative data, where Pakistan lags behind India in nearly all conventional military categories—except for mobile artillery and mobile missile launch systems:

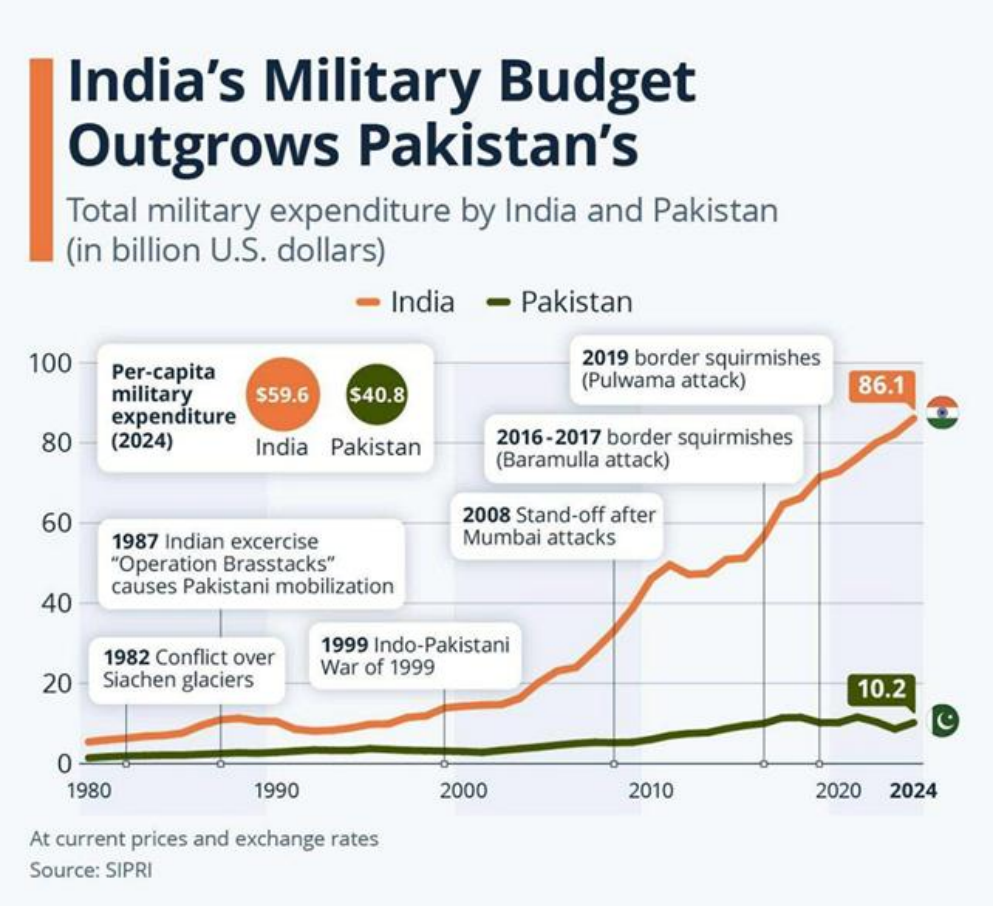
**Table: Comparative Military Capabilities – India vs. Pakistan**[17]

| Category | India | Pakistan |
|---|---|---|
| Total Population | 1, 409, 128, 296 | 252, 363, 571 |
| Active Military Personnel | 1 455 550 | 654 000 |
| Reserve Forces | 1 155 000 | 550 000 |
| Paramilitary Forces | 2, 527 000 | 500 000 |
| Defense Budget (USD) | 75, 000, 000, 000 $ | 7, 640, 000, 000 $ |
| Total Aircraft | 2, 229 | 1,399 |
| Combat Aircraft | 513 | 328 |
| Attack Aircraft | 130 | 90 |
| Transport Aircraft | 270 | 64 |
| Trainer Aircraft | 351 | 565 |
| Special Mission Aircraft | 74 | 27 |
| Aerial Refueling Aircraft | 6 | 4 |
| Helicopters | 899 | 373 |
| Attack Helicopters | 80 | 57 |
| Tanks | 4,201 | 2,627 |
| Armored Vehicles | 148,594 | 17,516 |
| Self-Propelled Artillery | 100 | 662 |
| Towed Artillery | 3,975 | 2,629 |
| Mobile Rocket Systems | 264 | 600 |
| Naval Assets (Total) | 293 | 121 |
| Aircraft Carriers | 2 | 0 |
| Submarines | 18 | 8 |
| Destroyers | 13 | 0 |
| Frigates | 14 | 9 |
| Corvettes | 18 | 9 |
| Patrol Vessels | 135 | 69 |
| Nuclear Warheads (Estimated) | 172-180 | 170 |

[15] Kamal N. Nuclear Free Zone in South Asia: Pakistan's Proposals and Problems. Strategic Studies, Vol. 10, No. 3 (Spring 1987). - P. 55.

[16] Jalil G.Y. Nuclear Arms Race in South Asia: Pakistan's Quest for Security. https://www.cndpindia.org/wp-content/uploads/2019/10/Nuclear-Arms-Race-in-South-Asia-Pakistan.pdf. (11.06.2025) - P. 24.

[17] Ushbu jadval Globalfirepower ma'lumotlariga asoslanib muallif tomonidan tuzilgan. Manba: https://www.globalfirepower.com/countries-comparison-detail.php?country1=india&country2=pakistan (24.06.2025)




India's Military Budget Outgrows Pakistan's
Total military expenditure by India and Pakistan (in billion U.S. dollars)
India
Pakistan
Per-capita military expenditure (2024)
$59.6
India
$40.8
Pakistan
2019 border squirmishes (Pulwama attack)
2016-2017 border squirmishes (Baramulla attack)
2008 Stand-off after Mumbai attacks
1987 Indian excercise "Operation Brasstacks" causes Pakistani mobilization
1999 Indo-Pakistani War of 1999
1982 Conflict over Siachen glaciers
86.1
10.2
100
80
60
40
20
0
1980
1990
2000
2010
2020
2024
At current prices and exchange rates
Source: SIPRI

According to Pakistani researcher G.Y.Jalil, the most appropriate theoretical framework for explaining the arms race between Pakistan and India is the action-reaction model. She and other experts argue that the internal structure model and the technological imperative model do not

adequately reflect the realities of South Asia. This is primarily because, first, these models tend to be more applicable to democratic states; and second, the defense-industrial complexes and research institutions in both India and Pakistan are state-controlled and operate primarily based on government directives.[18] G.Y.Jalil notes that the security rivalry between these two countries initially began as a conventional arms race and has since evolved into a nuclear competition after both developed nuclear weapons. In her view, over the past several decades, India and Pakistan have become caught in an action-reaction spiral in the development of nuclear weapons and ballistic missile systems.

- India was the first to decide to develop nuclear weapons, and Pakistan followed suit in order to preserve its sovereignty.
- India launched its ballistic missile program, and Pakistan mirrored this development.
- India formulated the Cold Start Doctrine, which provides for limited conventional warfare under a nuclear umbrella; in response, Pakistan developed tactical nuclear weapons.
- Currently, India is expanding its Ballistic Missile Defense (BMD) capabilities, and Pakistan is developing missiles designed to penetrate or bypass such a system, a development that could significantly alter the future balance of nuclear power in the region.[19]

In addition to Jalil's argument, it should be noted that India possesses a complete nuclear triad, which enables it to deliver nuclear weapons from land, air, and sea. While Pakistan's navy is significantly smaller than India's, Islamabad is also making efforts to enhance its naval capabilities and to develop a credible second-strike capability.[20]

Pakistan has not adopted a nuclear doctrine in the form of a unified, official document. Instead, its nuclear policy is inferred from various public statements and materials issued by the National Command Authority (NCA) and the Inter-Services Public Relations (ISPR), the media wing of the Pakistani Armed Forces. While India formally declared its nuclear doctrine in 2003, Pakistan, in contrast, has preferred strategic ambiguity and has chosen not to publicly disclose its nuclear doctrine in a comprehensive manner. Rather than publishing a codified doctrine, Pakistan has occasionally issued official statements through various governmental channels to communicate aspects of its nuclear policy. Thus, Pakistan's undeclared nuclear doctrine is constructed based on official remarks from both civilian and military leadership. These include statements by the Prime Minister, press releases from ISPR, and public comments by figures such as the Minister of Foreign Affairs and Lieutenant General Khalid Ahmed Kidwai, the founding Director General of the Strategic Plans Division and, since his retirement in 2014, a senior advisor. In addition, insights into the features of Pakistan's nuclear doctrine have been provided by members of the academic and defense elite. Notable contributors include Dr. Samar Mubarakmand (a prominent Pakistani nuclear physicist known for his work at the Pakistan Institute of Nuclear Science and Technology (PINSTECH)), Naeem Ahmed Salik (former Director for Arms Control and Disarmament at the Secretariat of the Strategic Plans Division under the NCA), and Mahmud Ali Durrani (a retired general, national security analyst, and former National Security Advisor to the Government of Pakistan (2008–2009)).

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[18] Salik N. Strategic Stability in South Asia. Challenges and Prospects. Islamabad Papers, 2016. Nuclear Paper Series No.3. - P. 6-7. Jalil G.Y. Nuclear Arms Race in South Asia: Pakistan's Quest for Security. https://www.cndpindia.org/wp-content/uploads/2019/10/Nuclear-Arms-Race-in-South-Asia-Pakistan.pdf. (11.06.2025) - P. 18.

[19] Jalil G.Y. Nuclear Arms Race in South Asia: Pakistan's Quest for Security. https://www.cndpindia.org/wp-content/uploads/2019/10/Nuclear-Arms-Race-in-South-Asia-Pakistan.pdf (11.06.2025) - P. 18-19.

[20] In the event of a hypothetical nuclear war, if a country's territory is completely devastated by a nuclear strike, the establishment of a second-strike capability ensures the possibility of retaliating from the sea. Submarines play a crucial role in this strategy, as they can remain submerged and hidden for extended periods and are capable of launching nuclear missiles undetected. In 2021, Pakistan successfully tested the submarine-launched nuclear-capable missile Babur-3, which significantly contributes to its second-strike capability. Source: Salam H.A. Exploring Pakistan's Second Strike Nuclear Capability. December 14, 2024. Global Defence Insight. https://defensetalks.com/exploring-pakistans-second-strike-nuclear-capability/# (25.06.2025)

Their interviews and public statements are considered valuable for understanding the unofficial contours of Pakistan's nuclear posture.[21]

According to Pakistan's nuclear doctrine, the concept of Credible Minimum Deterrence (CMD)[22] asosan According to Pakistan's nuclear doctrine, the concept of CMD is primarily regarded as a last-resort measure in response to an existential threat, particularly from India. Nuclear weapons serve not only as a means to deter India but are also considered a strategic and political instrument. Importantly, Pakistan reserves the right to use nuclear weapons even in response to a conventional military attack, a stance that stands in direct contrast to India's declared No First Use (NFU) policy.[23]

The significance of Pakistan's nuclear deterrence strategy increased notably after India adopted its Cold Start Doctrine. This doctrine was developed in response to the failure of India's Operation Parakram and aimed to enable rapid, limited, but effective conventional military operations against Pakistan without crossing the nuclear threshold. The core idea behind Cold Start is to mobilize quickly within hours, seize strategic objectives near the border, and conduct coordinated operations using land, air, and naval forces. This approach provides India with a military option to retaliate swiftly in case of terrorist attacks allegedly originating from Pakistani territory, while simultaneously exerting international pressure on Pakistan without provoking a nuclear response.[24] In reaction, Pakistan revised its nuclear posture and developed tactical nuclear weapons (TNWs).[25] At this point, it is appropriate to refer to V. Narang's Nuclear Optimization Theory. According to Narang, a nuclear doctrine should not merely be seen as a declaratory policy, but rather as an optimized response tailored to specific threats. This means that each state designs its nuclear force posture based on calculated deterrence objectives. In Pakistan's case, its posture evolved in line with the perceived threat from India. It adopted an Asymmetric Escalation posture, whereby tactical nuclear weapons would be used first in response to a limited conventional Indian incursion - thereby restoring deterrence. Consequently, Pakistan's nuclear doctrine underwent a fundamental shift: from Credible Minimum Deterrence (CMD) to Full Spectrum Deterrence (FSD)[26] Under this posture, nuclear deterrence is no longer confined to existential or strategic threats alone; rather, it encompasses the entire spectrum of potential threats. FSD envisions deterrence at all levels—strategic, operational, and tactical—and includes the development and deployment of strategic weapons, medium-range systems, and tactical nuclear capabilities.

Pakistan's development of nuclear weapons capabilities, as well as its ballistic missile program, was a direct response to India's advancements in these areas. In a broader context, several factors spurred Pakistan's missile development: the U.S. refusal to deliver promised F-16 fighter jets, a series of

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[21] Ahmed A., Hashmi M.J., Kausar S. Pakistan Nuclear Doctrine from Minimum Deterrence to Full Spectrum Credible Minimum Deterrence (FSCMD). Pakistan Social Sciences Review, December 2019, Vol. 3, No.2 [86-101] P-ISSN 2664-0422, O-ISSN 2664-0430. - P. 87.

[22] Pakistan's official nuclear policy is based on the principle of Credible Minimum Deterrence (CMD), which implies that nuclear weapons would only be used if the existence of the state is under threat. Under this doctrine, it is deemed sufficient to maintain a nuclear force capable of inflicting unacceptable damage on an aggressor, thereby deterring a potential attack. The policy does not aim for absolute superiority, but rather focuses on maintaining a credible ability to deliver a devastating retaliatory response, should deterrence fail.

[23] Ahmed A., Hashmi M.J., Kausar S. Pakistan Nuclear Doctrine from Minimum Deterrence to Full Spectrum Credible Minimum Deterrence (FSCMD). Pakistan Social Sciences Review, December 2019, Vol. 3, No.2 [86-101] P-ISSN 2664-0422, O-ISSN 2664-0430. - P. 88-89.

[24] India's New ''Cold Start'' War Doctrine strategically reviewed. By Kapila S. Paper no. 991, 04.05.2004. https://web.archive.org/web/20111002230800/http://www.southasiaanalysis.org/papers10/paper991.html (26.06.2025)

[25] Tactical nuclear weapons, also referred to as non-strategic nuclear weapons, are typically designed for use on the battlefield and intended to strike targets directly within enemy territory. Compared to strategic or long-range nuclear weapons, tactical nuclear weapons are characterized by shorter ranges and are meant for more limited, localized military objectives.

[26] Ahmed A., Hashmi M.J., Kausar S. Pakistan Nuclear Doctrine from Minimum Deterrence to Full Spectrum Credible Minimum Deterrence (FSCMD). Pakistan Social Sciences Review, December 2019, Vol. 3, No.2 [86-101] P-ISSN 2664-0422, O-ISSN 2664-0430. - P. 92-93.

crises with India in the mid-1980s, and India's successful tests of the Prithvi and Agni missiles. In fact, both India and Pakistan had been developing civilian space programs since the 1960s. However, India's launch of the Integrated Guided Missile Development Programme (IGMDP)[27] in 1983 marked the beginning of an overt missile race in the region. In response, Pakistan initiated its own missile program in the late 1980s by utilizing sounding rocket technology to develop two short-range ballistic missiles: the Hatf-1 with a range of 80 km and the Hatf-2 with a range of 200–300 km.[28] It is important to note that during this period, Pakistan lacked an indigenous technological base, and the Missile Technology Control Regime (MTCR) posed further constraints. Consequently, in the early 1990s, Pakistan acquired M-11 missiles from China and used this technology as a foundation to develop the Hatf-3, also known as Ghaznavi, with a range of 300 km. In April 1998, Pakistan successfully tested the Hatf-5 or Ghauri, a medium-range ballistic missile with liquid fuel propulsion and a range of approximately 1,300 km. This milestone enabled Pakistan, for the first time, to strike targets deep within India, providing a counterbalance to India's earlier-tested Agni missile. Subsequently, on April 15, 1999, Pakistan tested an improved version of the Ghauri along with the Shaheen-1, a missile with a range of 700 km. These tests were conducted in direct response to India's April 11, 1999 test of the Agni-2, which had a range of 2,000 km. The Ghaznavi (Hatf-3), with a range of 290 km, was first tested in May 2002, during heightened military tensions between India and Pakistan. Later, in March 2004, Pakistan tested its longest-range missile to date, the Shaheen-2 (Hatf-6), with a range of approximately 2,000–2,500 km.[29]

Most of Pakistan's recent missile developments have been driven by the need to evade or overcome India's Ballistic Missile Defence (BMD) systems. For instance, in January 2017, Pakistan successfully tested the Ababeel surface-to-surface ballistic missile, which has a range of 2,200 kilometers and is capable of delivering multiple independently targetable reentry vehicles (MIRVs)[30] This capability allows it to strike multiple targets simultaneously and overwhelm enemy radar and interception systems, thereby enhancing the likelihood of missile penetration and ensuring delivery of warheads.[31] In response to vulnerabilities posed by missile defense systems, Pakistan has introduced qualitative and quantitative modifications to its nuclear and missile arsenal. Missiles such as Babur, Ra'ad, Ababeel, and Nasr are part of Pakistan's answer to India's missile defense initiatives.[32] In particular, the Babur-3 submarine-launched cruise missile and other cruise missile systems are intended not only to counter India's BMD but also to reinforce Pakistan's nuclear deterrence in response to India's naval-based missile systems such as K-4, K-15, Dhanush, BrahMos, and Nirbhay. The deployment of sea-launched cruise missiles provides Pakistan with a second-strike capability, a key component of credible deterrence. However, due to its limited economic resources, Pakistan's nuclear capability at sea remains relatively constrained compared to India's more advanced and expanding naval nuclear posture.[33]

The arms race between India and Pakistan is not limited to nuclear and missile domains but persists in the sphere of conventional weaponry as well. Both countries are actively modernizing and upgrading their arsenals. Notably, India has modernized its air fleet by procuring Rafale fighter jets

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[27] IGMDP (Integrated Guided Missile Development Programme) - This refers to the Integrated Guided Missile Development Programme (IGMDP), a major national defense initiative launched by the Government of India in 1983. The program aimed to develop indigenous missile technologies and reduce the country's dependence on foreign imports in the defense sector.

[28] Jalil G.Y. Missile Race in South Asia. Strategic Studies. (This content downloaded from 213.230.78.180 on Wed, 11 Jun 2025 16:05:08 UTC All use subject to https://about.jstor.org/terms) -P. 48.

[29] Jalil G.Y. Missile Race in South Asia. Strategic Studies. (This content downloaded from 213.230.78.180 on Wed, 11 Jun 2025 16:05:08 UTC All use subject to https://about.jstor.org/terms) - P. 48.

[30] MIRV - Multiple Independently-targetable Reentry Vehicle.

[31] SIPRI Yearbook 2024: Armaments, Disarmament and International Security. Kristensen H.M., Korda M. - P. 335.

[32] Umar M. Nasr: A Product of Pakistan's Strategic Culture. January, 2016. Policy Perspectives 13(1):153, DOI:10.13169/polipers.13.1.0153. - P. 159.

[33] Jalil G.Y. Missile Race in South Asia. Strategic Studies. (This content downloaded from 213.230.78.180 on Wed, 11 Jun 2025 16:05:08 UTC All use subject to https://about.jstor.org/terms) - P. 49-51.

from France. Additionally, it has acquired the S-400 air defense systems from Russia and is working on the modernization of its Arjun main battle tanks. On the other hand, Pakistan has prioritized its defense cooperation with China, which has become the principal supplier of military hardware to the Pakistani Armed Forces. Between 2022 and 2024, approximately 82% of Pakistan's total arms imports came from China, while these exports represented about 60% of China's total weapons exports, highlighting the strategic nature of this partnership. Currently, the backbone of the Pakistan Air Force consists of 156 units of JF-17 Thunder aircraft, co-developed with China, and 20 units of J-10C multirole fighter jets are also in operation.[34] Furthermore, Pakistan is considering the acquisition of additional Chinese military systems, including the HQ-19 air defense system, J-35 fifth-generation fighter aircraft, and the KJ-500 airborne early warning and control (AEW&C) system.[35] China's growing prominence in global arms exports is largely attributed to its lack of export restrictions, which makes it an attractive defense partner for Pakistan—especially given the historical and current limitations Pakistan faces in acquiring arms from Western sources. Moreover, the convergence of strategic interests between China and Pakistan vis-à-vis India has further strengthened this defense partnership. For China, the enhancement of Pakistan's conventional military capability offers a strategic counterbalance to India in the region.[36]

Military cooperation between Turkey and Pakistan has also been actively developing in recent years. Turkish military experts have contributed to the modernization of the Pakistan Armed Forces. Notably, under a $1.5 billion defense contract, four MILGEM-class corvettes were jointly produced by both countries for the Pakistan Navy. Pakistan has also placed an order for 30 T129 ATAK helicopters from Turkey, reflecting growing defense procurement ties between the two nations. Moreover, there exists deep-rooted cooperation between their military and intelligence agencies. In particular, the Turkish National Intelligence Organization (MIT) and Pakistan's Inter-Services Intelligence (ISI) maintain professional intelligence-sharing and joint coordination mechanisms.[37] During the four-day military tension following the Pulwama incident, it was reported that Pakistan utilized Turkish drones, including the Bayraktar and Songar UAVs, as part of its surveillance and reconnaissance operations. This indicates the growing operational integration and trust between Ankara and Islamabad in the defense sector.[38]

When discussing the arms race between India and Pakistan, it is essential to consider that many military decisions have been influenced by moments of crisis. Each step in this competition has typically prompted a counter-reaction from the other side. Similarly, limited confrontations since the 2010s have offered key lessons and have influenced adjustments in both countries' military arsenals. For instance, during the Pahalgam crisis, several new developments were observed: India, for the first time, reportedly used BrahMos cruise missiles—developed jointly with Russia—and the European SCALP-EG missiles against Pakistan. In response, Pakistan launched its short-range conventional ballistic missiles, Fatah-I and Fatah-II, and possibly other types. Notably, this confrontation marked the first time both sides employed drones with offensive intent, indicating a new operational trend in their military rivalry. The 2025 Pahalgam crisis introduced several weapons systems and methods that had not been used during the 2019 Pulwama–Balakot standoff, reflecting a shift in military

[34] СМИ: Использование Пакистаном китайского вооружения стало «переломным моментом».10 мая 2025. https://caliber.az/post/smi-ispolzovanie-pakistanom-kitajskogo-vooruzheniya-stalo-perelomnym-momentom. (29.06.2025)

[35] Pakistan Looks at Procuring HQ-19, J-35 & KJ-500 From China. By Khan B. June 10, 2025. https://quwa.org/pakistan-air-force-news/pakistan-looks-at-procuring-hq-19-j-35-amp-kj-500-from-china-june-10-2025/ (29.06.2025)

[36] Pakistan's J-10 Acquisition and Conventional Deterrence. Iqbal G. April 12, 2022. https://southasianvoices.org/pakistans-j-10-purchase-and-conventional-deterrence/ (29.06.2025)

[37] Turkey and Pakistan Strengthen Military Cooperation. By Asatryan G. June 20, 2025. https://moderndiplomacy.eu/2025/06/20/turkey-and-pakistan-strengthen-military-cooperation/ (29.06.2025)

[38] From offering drones to solidarity: Turkey's hand in Pakistan's attacks. Debris Analysis points to Songar drones made in Turkey: Govt. By Roy Sh. May 10, 2025. https://indianexpress.com/article/explained/operation-sindoor-from-offering-drones-to-solidarity-turkeys-hand-in-pakistans-attacks-9993753/ (29.06.2025)

doctrines and technological adaptation. Given the increasing pace of military innovation, future crises between the two nations are likely to look very different, potentially involving more advanced and disruptive technologies. The outcomes—whether success or failure—of such crises will likely serve as decisive inputs for both countries' future doctrinal strategies and defense modernization programs. These developments not only deepen the arms race but also increase the unpredictability of the next flashpoint in South Asia.[39]

**Conclusion:** The security environment in the South Asian region is defined by the relations between India and Pakistan. The increasing level of armament on both sides creates a serious security dilemma. The conflicts between the two countries, especially the Kashmir dispute, are a constant source of tension between them. The disagreements between these two de facto nuclear-armed states, strong rivalry, and lack of mutual dialogue and confidence-building measures have led to a number of political problems. Since India and Pakistan became nuclear-armed states, the situation in South Asia has significantly deteriorated. This rivalry intensifies the conflicts between the two countries and can also affect other countries in the region. The fear of nuclear competition causes concern among the non-nuclear-armed states in South and Southeast Asia, which raises worries about the potential further proliferation of nuclear weapons in the region.

Specifically regarding Pakistan, as discussed above, the country spends over 10 billion dollars on its defense (it was announced that Pakistan's defense expenditures increased by another 20% following the Pahalgam crisis), amounting to about 4% of its GDP (compared to India's 2.5%). This is a dangerous figure for Pakistan's economy and may hinder long-term economic stability and social development.

Moreover, constant military build-up maintains a high risk of nuclear conflict escalation. For Pakistan, entering an arms race with India - especially while latter is seeking global leadership roles such as a permanent seat on the UN Security Council - is not considered prudent, since the arms race has no end and could result in catastrophic defeat for one side. This competition creates multiple security threats for the region. For example, India's advances in air defense systems and hypersonic weapons development are viewed as threats by Pakistan, while Pakistan's tactical nuclear weapons increase the risk of nuclear escalation. Additionally, the dual nature of missile arsenals (whether equipped with conventional or nuclear warheads) complicates decision-making, as it is difficult to identify the type of payload once missiles are launched, which could lead to mistaken responses. Furthermore, Pakistan's development of naval nuclear capabilities raises escalation risks due to communication difficulties between sea and land command centers. The integration of artificial intelligence technologies and military satellite systems into defense sectors also presents future risks.

For many years, Pakistan has promoted the idea of establishing a nuclear-weapon-free zone in the region and proposed jointly joining the Nuclear Non-Proliferation Treaty (NPT) with India. However, differences in positions prevented any agreement. Meanwhile, Pakistan covertly continued to develop its nuclear program in parallel with advocating the nuclear-free zone initiative.

If the phases of the South Asian arms race are considered, the period before 1998 can be classified as a covert phase. From 1998 onward, an open phase began with public nuclear tests, and since 2008, the phase can be called modern, characterized by the enhancement of nuclear arsenals and the development of tactical nuclear weapons.

Thus, India's military buildup - perceived by Pakistan as an existential threat - and Pakistan's dissatisfaction with the Kashmir status quo have trapped Pakistan in an action-reaction spiral of arms competition. This competition involves increasing nuclear warheads, delivery systems for both nuclear and conventional weapons, air defense systems (including anti-missile defenses),

[39] Four Days in May: The India-Pakistan Crisis of 2025. By Clary C. May 28, 2025. https://www.stimson.org/2025/four-days-in-may-the-india-pakistan-crisis-of-2025/#:~:text=This%20began%20a%20four%2Dday,and%20disinformation%20about%20what%20occurred. (29.06.2025)

conventional arms development, and the establishment of naval nuclear capabilities. The rivalry may also extend into new domains in the future.

Given this context, it is advisable for the parties to revive the suspended negotiations since 2016, impose limits or controls on nuclear and conventional armaments, and establish confidence-building measures to reduce tensions.

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