

PAKISTAN'S NUCLEAR WEAPON PROGRAM

GUARANTOR OF PEACE AND STABILITY IN
SOUTH ASIA

Proceedings of CISS Seminar

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Report

CISS Seminar
On
Youm-e-Takbeer 2025

**Pakistan's Nuclear Weapon Program
Guarantor of Peace and Stability in South Asia**



Center for International Strategic Studies
Islamabad-Pakistan

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INTRODUCTION

The Center for International Strategic Studies (CISS), Islamabad, organized a one-day seminar to commemorate Youm-e-Takbeer 2025 titled “Pakistan’s Nuclear Weapon Program: Guarantor of Peace and Stability in South Asia” at the CISS Conference Hall on Friday, May 30, 2025. The seminar began with welcome remarks by Ambassador Ali Sarwar Naqvi, Executive Director, CISS, followed by a plenary session featuring a keynote address delivered by Lieutenant General (Retd) Khalid Ahmad Kidwai, advisor to the National Command Authority (NCA) and former Director General (DG), Strategic Plans Division (SPD).

The working session included four speakers. Mr Muhammad Naeem, advisor SPD and former Chairman, Pakistan Atomic Energy Commission (PAEC), spoke on *the Role of Scientists in Pakistan’s Quest for Nuclear Weapons*. Brigadier (Retd) Zahir ul Haider Kazmi, Advisor, Arms Control SPD, discussed *Nuclear Deterrence and Strategic Stability in South: Challenges and Opportunities*. Air Commodore (Retd) Dr Adil Sultan, Dean of Faculty of Aerospace and Strategic Studies (FASS), Air University Islamabad, presented on *Airpower, Conventional Escalation, and the Nuclear Overhang, Drawing Lessons from Operation Bunyanum Marsoos*. Ambassador Sohail Mehmood, DG, Institute of Strategic Studies Islamabad (ISSI) and former Foreign Secretary, Pakistan, addressed *the Prospects for Crisis Management Mechanisms and Confidence Building Measures (CBMs) in post-Pahalgam South Asia*. The seminar concluded with the closing remarks delivered by Dr Bilal Zubair, Director Research, CISS Islamabad.



EXECUTIVE SUMMARY

The Youm-e-Takbeer seminar focused on strategic doctrine underpinning Pakistan's nuclear weapons program, with a special emphasis on its role as a stabilizing force in the region. The seminar featured distinguished speakers, including defense analysts, retired military officials, academic scholars, and science and technology experts. They provided insights into how Pakistan's nuclear capability has served as a deterrent against aggression and contributed to maintaining a balance of power in a volatile region. This seminar is of utmost importance as it aims to address misconceptions surrounding nuclear deterrence and highlight Pakistan's responsible nuclear posture despite facing persistent regional challenges. The event also emphasized Pakistan's adherence to international norms of nuclear safety and security. By fostering informed dialogue and awareness among students, professionals, and the wider community, the seminar reinforced national resolve and promoted informed citizenship.

- May 28 marks the anniversary of Pakistan's 1998 nuclear tests, considered a pivotal milestone in the history of national defense. These tests restored strategic balance in South Asia within two weeks, addressing the long-standing conventional asymmetry between India and Pakistan.
- Pakistan's pursuit of nuclear weapons was not merely a scientific ambition but a strategic necessity, driven by the imperative to safeguard national sovereignty, deter external aggression, and establish a credible balance of power in an increasingly volatile South Asia.
- The realization of the vision, Pakistan having nuclear weapons, was made possible by an exceptional cadre of

scientists, engineers, and strategic planners, who transformed a seemingly insurmountable challenge into a tangible reality. Operating under severe technological embargoes, financial constraints, and geopolitical isolation, these pioneers devised indigenous solutions, procured critical materials through clandestine networks, and established a self-sufficient nuclear infrastructure.

- In May 2025, India escalated not just militarily but symbolically by naming its operation as “Operation Sindoor”. Sindoor, in the Hindu civilizational idiom, is a marker of sanctity, sacrifice, and protection, and in this context, an assertion of righteous power. This was strategic semiotics, signalling that the kinetic act had a civilizational sanction. In effect, India fused war, identity, and mythology into one message. On the other hand, Pakistan responded with “Operation Bunyanum Marsoos”, drawn from Surah As-Saff in the Quran, meaning “a structure joined firmly, like a wall sealed with molten lead”. This was not a theological assertion; rather, it was a strategic metaphor denoting unity, resolve, and defensive cohesion in the face of unprovoked aggression.
- In retaliation for Indian strikes, Pakistan’s swift and calculated military response resulted in significant Indian losses, including six fighter jets and a highly sophisticated drone, which forced India to request a ceasefire within 87 hours. The Pakistan Air Force, using Chinese-origin systems, demonstrated overwhelming dominance over Western-equipped Indian forces, symbolized by what was described as a 6-0 defeat in the skies.

- India's Cold Start Doctrine (CSD) was replaced by the Dynamic Response Strategy (DRS), a more covert but equally aggressive approach. The shift was faster than anticipated, as seen in the recent Pahalgam escalation. The absence of Indian integrated ground offensives during the May 2025 conflict demonstrated the irrelevance and failure of India's CSD under the current strategic landscape shaped by Pakistani deterrence.
- Pakistan's credible deterrence, based on nuclear capability and operational readiness, was reaffirmed as the central pillar preventing war escalation and maintaining strategic balance in South Asia.
- Pakistan's national security planners categorized its counteraction not as retaliation, rather as a response to Indian aggression inspired by extremist Hindutva theology. Response implies calculated proportionality, not emotional reciprocation. During the May 2025 adventure, India also violated established norms across the Line of Control (LoC) and the international border. In return, Pakistan executed with Precision (taking out military targets only), Calibration (intentionally avoiding vertical escalation), and Clarity (achieving limited objectives and giving a clear message)
- In the aftermath of the post-Pahalgam crisis, Pakistan has declared that any future false-flag operation, conventional strike, or interference in Pakistan's water rights, particularly Indus Waters Treaty (IWT) violations, would be a red line for Pakistan, potentially triggering kinetic or even nuclear retaliation.

- By allowing space for a limited conflict could have led to a major war between the two nuclear-armed neighbouring adversaries, and it would have questioned the credibility of Pakistan's nuclear deterrence. To plug this 'perceived gap', Pakistan introduced its Tactical Nuclear Weapons (TNWs) as part of its Full Spectrum Deterrence (FSD) posture, which is aimed at deterring the full spectrum of threats, from tactical to an all-out war.
- India's self-created confusion on TNW or Short-Range Ballistic Missile (SRBM), Short Range Y-Class Missile (SRYL) weapons, etc., gave negative signaling as if Pakistan is not clear about its purpose or has preferred a different classification due to continuous negative spotlight from the United States (US) and other Western partners of India.
- Despite pursuing the Cold Start Doctrine (CSD) /Pro-Active Operations strategy annually, India has significantly failed to operationalize its limited war-fighting doctrine during subsequent crises. This is mainly due to concerns over uncontrolled escalation, and Pakistan's conventional deterrence has also proven credible in preventing escalation.
- Since there is no space for a limited war between nuclear-armed neighbours; yet India will continue to explore new tools/strategies to engage in a limited conflict: a contestable-incontestable vs less credible or more credible paradox. The new abnormal cannot be allowed to become a new normal.
- In future crises, India will continue to prefer to use unmanned air vehicles along with other aerial platforms having stand-off weapons to inflict damage deep inside Pakistan's territory and build its credentials as a credible

regional military power to prove itself as a so-called “Net Security Provider” in the region.

- Drawing lessons from the past four crises and given India’s growing technological advancements, it is recommended that Pakistan prioritize strengthening its airpower, including integrated air defence systems and associated capabilities.
- Any future conflict between India and Pakistan is likely to be short, swift, and characterized by the use of both manned and unmanned aircraft. Therefore, resources should be strategically directed towards enhancing airpower rather than investing in other expensive military platforms that are unlikely to be employed in the foreseeable bilateral conflict scenario.
- The acquisition of new, advanced and sophisticated military technologies from external sources would be a challenge for Pakistan. To narrow the growing technological gap, Pakistan will have to mobilize its all its available national resources by building an active partnership between the governmental defence entities and the private sector.
- In a region where crises can escalate rapidly and decision-making timelines are severely compressed; the absence of even basic Nuclear Confidence Building Measures (NCBMs) risks catastrophic consequences.
- Historically, Confidence Building Measures (CBMs) between India and Pakistan have endured even during periods of heightened tensions. Initiatives such as the annual exchange of lists of nuclear facilities and the pre-notification of ballistic missile tests have consistently been upheld

through major crises — from Kargil in 1999 and the 2001–2002 standoff to the Pulwama-Balakot crisis in 2019. If the existing CBMs are held in abeyance and suspended without formal acknowledgement, the implications are serious. The most critical of these measures are those that are designed to prevent misinterpretation, allow real-time communication, and reduce the risks of accidental escalation. These are precisely the ones at risk of erosion or neglect amid the current diplomatic freeze.

- Existing mechanisms, such as military hotlines, have been largely ineffective during recent escalations, leading to negative perceptions and reactionary decision-making. Moreover, aggressive military and political signaling by India has further fueled instability, making clear communication essential to defusing tensions.
- Lasting peace in South Asia could only be achieved through dialogue, political maturity, and reconciliation, considering the past US-led diplomatic initiatives as models to build upon.

INAUGURAL PLENARY

- **Opening Remarks**

Ambassador Ali Sarwar Naqvi, Executive Director, CISS

- **Keynote Address**

Lt Gen (Retd) Khalid Ahmed Kidwai, NI, HI, HI (M),
Advisor National Command Authority

- **Interactive Session**

OPENING REMARKS

Ambassador Ali Sarwar Naqvi

Executive Director, CISS

It gives me great honour and a profound sense of national purpose that I welcome you all to this seminar organized by CISS to commemorate *Youm-e-Takbeer*, a day of enduring historical significance for the Islamic Republic of Pakistan. On behalf of my team, I want to welcome Ambassador Sohail Mahmood, Dr Ansar Parvez, Mr Pervaiz Butt, Mr Mohammad Naeem, Dr Adil Sultan, Mr Tahir Andrabi and senior dignitaries from PAEC for their presence at today's seminar on Pakistan's Nuclear Weapon Program Grantor of Peace and Stability in South Asia. It is of the great privilege to have the presence of Lieutenant General (Retd) Khalid Ahmed Kidwai who is a pioneer figure of the management of Pakistan's nuclear program, the architect of the command-and-control structure of the government of Pakistan.

I will begin my talk with an acknowledgement of the extraordinary contribution of the Ministry of Foreign Affairs during the critical days after India's nuclear weapons testing in 1998, leading up to Pakistan's nuclear tests. From May 11, 1998, onwards, the Foreign Office worked tirelessly through the days, late into the nights, and beyond. It was actively studying and monitoring international reactions to India's nuclear tests, formulating Pakistan's policy options, coordinating closely with scientists, engineers, and military leadership, and preparing for Pakistan's test.

On May 28, 1998, Pakistan carried out its nuclear tests; an act the nation commemorated as a demonstration of its sovereign right and strategic resolve. It was the day of great achievement as Pakistan successfully established a credible deterrent that day.

May 2025 marks the 26th anniversary of Pakistan's nuclear tests that were undertaken not in the pursuit of prestige or power, but as a necessary response to India's renewed nuclear testing and its persistent attempts to disrupt the region's strategic equilibrium. India's first nuclear explosion in 1974 already marked the beginning of South Asia's nuclearization, and its tests in May 1998 further destabilized the already fragile regional security architecture. In this environment, Pakistan's decision to exercise its nuclear option was an act of strategic compulsion, aimed at restoring credible deterrence, preserving regional balance, and safeguarding national sovereignty.

Youm-e-Takbeer thus symbolizes more than a technological milestone. It reflects Pakistan's unwavering commitment to maintaining peace through Credible Minimum Deterrence (CMD) and ensuring regional stability through strategic restraint. Pakistan's nuclear program remains the bedrock of its national security and a cornerstone of its policy of deterrence.

It is important to emphasize that Pakistan has always supported the global non-proliferation agenda and continues to advocate for the peaceful use of nuclear technology. However, the asymmetrical security environment in South Asia, driven by India's conventional and strategic build-up, left Pakistan with no choice but to develop its nuclear capability to ensure a credible deterrent.

As we reflect on our strategic journey, we must acknowledge the collective national effort that made Pakistan's nuclear capability possible, an achievement forged by the brilliance and resolve of our scientists, the steadfast support of our armed forces, and the enduring will of our political leadership and the people of Pakistan. It is a story of intellectual tenacity, strategic foresight, and national resilience.

Over the past two and a half decades, Pakistan has consistently demonstrated responsibility and maturity in managing its nuclear assets. Pakistan's command and control architecture is secure, resilient, and continually updated to meet evolving technological and strategic requirements. Pakistan has also instituted a comprehensive regime for nuclear safety and security, in line with international best practices and standards.

This seminar provides a timely opportunity to revisit the logic and relevance of deterrence in South Asia particularly, as the region confronts new and evolving challenges to crisis stability and escalation control. As recent developments show, the risks of miscalculation and inadvertent escalation remain high, underscoring the need for vigilance, responsible statecraft, and a commitment to dialogue and conflict prevention.

During the most recent episode of hostility with India, Pakistan's armed forces exhibited remarkable operational readiness and strategic restraint. In what has been described as one of the largest air engagements of the 21st century, featuring 112 combat aircraft, Pakistan achieved aerial superiority without suffering a loss, while India reportedly lost multiple advanced technology, including Rafale jets. Similarly, Pakistan's air defense forces successfully neutralized the largest drone attack in regional history, intercepting 77 hostile Unmanned Aerial Vehicles (UAVs) with a mix of soft and hard-kill capabilities. Multiple ballistic missiles, including BrahMos, were intercepted and deflected, demonstrating the sophistication of Pakistan's integrated air defense system.

These events underscore both the strength of Pakistan's conventional deterrence and the inherent dangers of escalation in a region populated by two nuclear-armed rivals. The recent Pahalgam incident illustrated how miscommunication, political rhetoric, or even a technical lapse can rapidly propel a crisis towards the brink

of conflict. The absence of institutionalized dialogue and crisis communication mechanisms between India and Pakistan further exacerbates this risk.

There is a pressing need for the international community to facilitate CBMs and structured engagement between the two countries. Strategic stability in South Asia must be recognized as a shared regional and global interest; its erosion will not remain confined to this region but could reverberate far beyond.

I once again extend a warm welcome to all our distinguished participants and thank you for joining us in this important reflection on Pakistan's strategic journey. I look forward to insightful discussions and a productive exchange of ideas during today's proceedings.

KEYNOTE ADDRESS

**Lieutenant General (Retd) Khalid Ahmed Kidwai,
NI, HI, HI (M)**

Advisor National Command Authority (NCA) & Former Director
General Strategic Plans Division (SPD)

Today's seminar has been organized to mark the 27th anniversary of Pakistan's nuclear tests of May 28 and 30 in response to Indian nuclear tests of May 11 and 13. In fact, today, exactly 30th of May, Pakistan conducted its second series of nuclear tests and therefore, the disturbed strategic balance of South Asia as well as the deterrence were re-established quickly within two weeks.

Pakistan has demonstrated the in-style acquisition of "*the great equalizer*." The enduring asymmetry in conventional military capabilities, which had tilted in favor of India for decades, was decisively addressed. Unfortunately, the story did not end here like the fairytales, and as a nation we did not live "happily ever after." As the dynamics of deterrence and warfare go, the shutting of the doors by Pakistan to India's large-scale conventional war gave rise to new phenomena.

Seeing its large conventional capabilities neutralized, because of Pakistan's nuclear force structure based on the policy of Full Spectrum Deterrence (FSD), India started conducting a relentless war, which continues even by a variety of other means as a deflative effect of nuclearization of South Asia. It openly started and brazenly owned the conduct of transborder terrorist operations in Baluchistan and Khyber Pakhtunkhwa (KPK), the western borders of Pakistan. This, of course, troubles no one in the West. But to conduct conventional operations on eastern borders, India came up with a toned-down strategy for warfighting at less grand scale

and from rather very expensive Cold Start Doctrine. They came down to the Dynamic Response Strategy (DRS).

It would be relevant to go back three weeks and recall the events of India's Operation *Sindoor* and Pakistan's Operation *Bunyan um Marsoos*. These events are directly linked with the nuances of today's seminar topic, i.e. "*Pakistan's Nuclear Weapon Program: The Guarantor of Peace and Stability in South Asia*". In the Pahalgam escalation, both India and Pakistan, while planning their respective operational responses and counter responses, considered the deterrence effect of their respective nuclear arsenal as well as of the operationalized technology in their respective conventional inventories.

Both capabilities exercise a profound influence on the response options and decision making of not only India and Pakistan but also had an effect on the international community. Today, it is now nearly three weeks since the ceasefire between India and Pakistan came into force on the afternoon of May 10th after India sued for peace, having received a stunning retaliatory threshing response from Pakistan after Fajar prayers that morning. Like May 1998, this once again was Pakistan's finest hour. Operation *Bunyan um Marsoos*, which lasted some three to four hours only, convinced India to cut further critical losses, which were piling up rapidly in addition to 6+1, loss of multiple fighter aircraft and Israeli Heron Unmanned Aerial Vehicle (UAVs).

In the words of CNN's Nick Robertson same evening, he said India did not know what happened, they were so stunned. And for CNN to say that it is saying a lot. Any subsequent denial to that effect by India now to regain the lost political ground and as part of a domestic disinformation campaign which has been well planned now it can be easily corrected by a very simple replay of Colonel Sofia Qureshi's television pleadings on the May 10th afternoon that India was ready for a ceasefire if Pakistan was. This was the first time that

an Indian spokesperson came up in the public domain and offered a ceasefire. It was a white flag, this poor girl has been asked to put up on the behalf 1.2 million Indian military and on behalf of Mr Modi himself. The might and pride of India found it convenient to hide behind her, and unfortunately, the Bharatiya Janata Party (BJP), Rashtriya Swayamsevak Sangh (RSS) goons, with their poison Hindutva philosophy, did not stop from dishonouring the Muslim colonel Sophia Qureshi by labelling her as the sister of terrorists.

In nearly five decades, since Pakistan made the strategic choice of developing nuclear weapons, there have been a number of occasions when Pakistan has reasons to feel vindicated when confronted by India as an aggressive belligerent and resort to force and on each occasion Pakistan's nuclear weapon capability has not just emerged as guarantor of Pakistan's national security but also as a guarantor of peace and stability in South Asia by keeping India's aggressive designs in check.

Whether it was India's operation Brass-tacks of 1986 cleverly raped in the garb of a military exercise or operation Parakaram in 2001 & 2002 lasting nearly 10 months of futile deployment or the failed so-called strategic strike of 2016 and then 2019 in Balakot it is Pakistan's nuclear capability which has continued to consistently generate two simultaneous strategic effects on every occasion.

- 1- In South Asia, there is the nuclear capability silently visible on the horizon in the background deter India's war designs and curtail the application of its military choices against nuclear Pakistan.
- 2- The nuclear capability shakes and spurs the international community outside South Asia into timely action to prevent things going out of hand between two heavily armed nuclear powers.

Pakistan's nuclear capability retains the promise of being the great equalizer against a much larger adversary. The recent escalation was perhaps the briefest war in modern history, three and a half days or eighty-seven hours to be exact. In comparison, the 1967 Arab- Israel war, which lasted almost twice the time that is six days, now seems like a very long war. Here are few strategic notions that have emerged in the post-escalation debate. Some of these are to begin with

- a) India's determination to challenge the concept of deterrence by conducting a false flag operation was followed by a politically driven commitment trap. Compelling India to break down deterrence, escalate and physically commit forces to kinetic offensive actions by striking targets inside Pakistan and in Azad Jammu & Kashmir (AJK).
- b) Thereby, compelling Pakistan to undertake appropriate kinetic retaliatory actions to reestablish the deterrence. The lead role of PAF's airpower as the frontline instrument of deterrence, as well as for the re-establishment of deterrence, was duly supported by robust ground actions by the Pakistan Army and operational deployments by the Pakistan Navy.
- c) The emergence of a variety of new normal because of the Indian escalation and Pakistan's retaliation.
- d) The strategic role of Pakistan's robust nuclear capability by sheer possession or presence as a deterrent to large-scale operations or all-out war as a final guarantor of peace and stability.

The reality of the shortest war is that India started it on the night of 6th and 7th of May as per its typical and now predictable playbook, it replicated the Pulwama 2019 false flag operation this time at Pahalgam and used it as a casus belli but on a much larger scale of operations. It indiscriminately employed a variety of strategic, operational and tactical standoff weapons and aerial platforms to

brazenly attack mainland Pakistan and AJK. In its exaggerated sense of politico-military arrogance and hubris, gross overestimation of its own capabilities, gross underestimation of Pakistan's conventional capabilities especially the Pakistan Airforce and ignoring the nuclear environment prevailing in South Asia/

The Cold Start Doctrine, which was carefully conceived, long prepared, and heavily publicized, was absent from the Indian military's actions. There were no reorganized Independent Battlegroups (IBGs) striking Pakistan to make their bridgehead within forty-eight to ninety-six hours, as the CSD used to profess. There were no Theatre Force Reserves (TFR) mobilizing rapidly as follow-on forces to join the early battle for a breakout. So, here was no rush to capture Pakistan's sensitive spaces while remaining below Pakistan's nuclear threshold.

Therefore, for all practical intents and purposes, the Indian Army's much-touted peers went missing in action. Resultantly, it now appears that the CSD has been given a formal decent burial or even perhaps cremation. The CSD figured out neither in the February 2019 episode nor in May 2025. It also appears that what the Indian Armed Forces, was compelled to undertake this time was selective operational missions plucked out or cherry-picked from a newly conceived operational strategy called the DRS. The Indian DRS is climbed down from the CSD because the Indian military probably concluded that the CSD was much too ambitious to be undertaken given the strategic balance prevailing in the South Asian nuclear environment. It is clear by now that Pakistan's robust nuclear weapons capability and the linked international reaction that come into play became the reason for the Indian operation to climb down from the CSD to a relatively less ambitious DRS. It also seems that the Indian military was not yet fully prepared and trained to undertake the operations even under the DRS.

Additionally, critical deployment on the long northern front of the thirty-eight hundred kilometers against China, continue to remain a handicap as these deployments drain some of India's offensive punch against Pakistan. India's professional military leaders were possibly politically coerced into undertaking escalation by the strong Indian Hindutva gang of the four people comprising of Prime Minister Modi, Defence Minister Rajnath Singh, Home Minister Amit Shah and, of course, the National Security Advisor Ajit Doval.

The military, particularly the IAF, was tasked to undertake operations beyond their professional capacities and readiness, perhaps against their better professional judgment. One would recall that the IAF chief had only a couple of months has gone public through a press conference on the serious inventory deficiencies of the IAF vis-à-vis the perceived threat of a two-front war against Pakistan and Chian.

He had openly expressed doubts about the IAF's readiness to undertake operations under an adverse operational environment, and he lamented both the quality and quantity of the forces available to him. And yet, under these relatively unfavourable operational environments, the IAF was assigned the lead role in Operation Sindoor. The outcome of the earlier air alert of April 29 over Kashmir, which was before May 6th and 7th, when PAF locked onto four Rafale fighters and forced them to flee in panic to Srinagar rather than to their parent base in Ambala ought to have further demonstrated to the IAF the superiority of PAF's strategy of conducting smart, integrated and multi-domain operations. India, nevertheless, persisted with reckless political decision by the gang of four of striking Pakistan for the false flag operation on April 22 at Pahalgam to draw political benefit for the dwindling fortunes of the BJP. On the night of May 6 and 7, the IAF attacked targets in mainland Pakistan and the AJK with standoff weapons from within the relative safety of its own airspace.

In a historic but intense technology driven air battle of over one hour, the PAF took the IAF on and changed the strategic balance of South Asia. For a long time now having won short out of the skies by the PAF and by losing six frontline fighters, the IAF retreated post haste having delivered their payload while remaining inside their airspace. The results laid bare before the entire world to see and accept as India stands humiliated militarily and politically, is also now displaying signs of socio-political stress internally in its polity due to the stunning defeat against an adversary. India grossly underestimated on all accounts. It has since been trying to project the utterly false propaganda, mainly for home consumption, that it scored a victory over Pakistan.

But to the utter disappointment of India, no one in the international community has bought the Indian story. The international media consistently puts out convincing stories and analysis of India's poor battle performance. The damage that was inflicted on the critical Indian military asset by the Pakistan military in four days cannot be hidden or wished away in this age of super technology. Also, the stock markets do not lie. These three and a half days were momentous and had brought about a major paradigm shift in the power equation of South Asia. The traditional understanding through all these years passed since 1947, 1965, 1971 and 1998, had been that a relative existed in the conventional force balance to the everlasting disadvantage of Pakistan vis-à-vis India. Hence, it became an article of faith and a tenet of Pakistan's strategy over the years that the development and possession of nuclear weapons by Pakistan, articulated through the policy of FSD, was the great equalizer and Pakistan's strategic response to the perennial operational imbalance of conventional force asymmetry.

On May 7 and 10, three weeks ago, Pakistan not only surprised and stunned India but the entire world. What started as an escalatory war between two nuclear armed neighbours soon transitioned into a

much larger global debate about Chinese versus Western technology. The debate has invoked not only the strategic implications and consequences as far away as Taiwan, Asia Pacific, Association of Southeast Nations (ASEAN), Europe and North Atlantic Treaty Organizations (NATO), but also for the global arms trade industry as their stock markets reacted to reflect the ground reality of a classic technology demonstration by the PAF. The debate has become China versus France by a tennis score of 6-0, and who knows that if Modi carries out his threat of yet another round, the next set and match might also follow another tennis score of 6-0. Or better still, perhaps a badminton score of 15-0.

In three and a half unforgettable days, it has been firmly established that it is now the PAF not the IAF, that has the dominant airpower in South Asia. The PAF rules the skies. It brought down the pride of Western, Russian, and Israeli technology to the ground in a matter of a few hours. The PAF has acquired a position of air superiority. The Rafale fleet was grounded and pulled back. The IAF, for all practical purposes, became what we might call a, left out of battle (LOB). The IAF was not only outraged by the PL-15 BVR, it was also out-teched by the deadly PAF's operational strategy of multidomain operations based on the combination of J-10, JF-17, PL-15 BVR Missiles, AWACS, electronic warfare and overall superior air defence ground environment.

In terms of strategic consequences, it seems like the modern-day reply of the 1967 Arab-Israel war, when on the morning of June 5, 1967, the Israeli Air Force in a preemptive strike and disseminated the combined Arab air forces of Egypt, Jordan and Syria in a matter of a few hours. The Israeli Air Force has ever since ruled the Middle Eastern skies unchallenged and here in South Asia, 48 years later the balance of Airpower shifted inside 60 momentous minutes. The outcome of the most conventional modern wars since WWII have been shaped by Air power and Air domination. All military

operations, whether on air, land or sea required air superiority as a fundamental prerequisite for operational success.

In the context, to quote the extraordinarily visionary statement from a speech by Quid-e-Azam Muhammad Ali Jinnah, while visiting PAF station Risalpur on April 13, 1948. He said, “A country without a strong Air Force is at the mercy of any aggressor. Pakistan must build up an air force as quickly as possible. It must be an efficient air force, second to none.” Quaid’s vision leads to the foundation of the core values that the PAF would follow for all times to come. If Quaid-e-Azam were alive today, he would have saluted PAF for delivering on his command.

Today, because of Operation Sindoor, the one irrefutable new normal that has emerged with sufficient clarity is that in South Asia today, the PAF rules the skies. Despite being smaller in size and initially perceived to be technologically and numerically inferior to the IAF. The PAF has smashed Indian hubris down as it shot out of the skies, the pride of India’s front line combat aircraft, the French Rafale, the Mirage 2000, the Russian SU-30 and the Mig-29 and of course the Israeli Heron Drone. It also added to its trophies a battery of the Russian S-400 and Anti-Ballistic Missile Weapon Systems at Adampur.

Looking to the future, the PAF is now likely to fast-track the induction of J-35, the stealth fighter and the relevant series of PL series BVR missiles, as well as perhaps enhance its J-10 and PL-15 inventories. The acquisitions are probably not too far away. It will further enhance the qualitative gap between the PAF and the IAF. Moreover, the acquisition of niche capabilities in the multidomain fields of cyber warfare, electronic warfare, and space will also enhance the PAF’s non-kinetic capabilities.

The PAF proved its ascendancy in all rungs and dominated the will of the enemy while creating superior effects both in kinetic and non-

kinetic domains. Its synergy with the Army and the Navy also led to superiority in undertaking multi-domain operations during this short period of time. This gap will not be closed by the IAF anytime soon. Therefore, with the IAF having been reduced to second place, amounting to PAF's air superiority in South Asia, any future operation by India, notwithstanding Mr Modi's political rhetoric, is likely to remain confined to standoff capability missiles, drones, etc. It is to remember that standoff capability does not win wars, nor can it support ground operations of the Indian Army or maritime operations by the Indian Navy. Operationally speaking, therefore, India is unlikely to resort to any meaningful use of forces in the future in any configuration, including maritime operations, given the air superiority of the PAF. Prime Minister Modi has talked of the emergence of a new normal in South Asia post-Operation Sindoor. He is right, except that the new normal comprises some of the following tenets:

- a) Air superiority has changed; hence, PAF is now the dominant airpower in South Asia, and this is the new normal. Mr Modi and the IAF might have noted by now, howsoever reluctantly.
- b) Further, the new normal is that this dominance gap is likely to be widened given even greater technological induction by PAF in the near future.
- c) The new normal is that the battle-proven conventional deterrent of the PAF has assumed a leading deterrence role in South Asia.
- d) The new normal is that Pakistan's robust nuclear deterrence will continue to exercise strategic level deterrence to constrain and curtail India's political and operational objectives and choices, thereby ensuring the maintenance of relative peace and strategic stability in South Asia.
- e) The new normal is that in case of renewed Indian conventional attack on Pakistan, which Mr Modi is so fond

of threatening despite having sued for a ceasefire, Pakistan's conventional retaliation to his escalation will always be Noch-up response as Field Marshal Asim Munir promised, a Quid Pro Quo Plus for sure.

- f) The new normal is that it will always be India that will, each time, continue to preserve the tradition of seeking a ceasefire after Pakistan's intense retaliation. Interestingly, Mr Modi in his intense strategic wisdom, has also mentioned his new normal of a terror attack on Indian soil to be responded to by a conventional attack on the predeterminant adversary that is Pakistan. If that be so, shouldn't this Modi Doctrine and logic now work both ways? Pakistan can thank Mr Modi for opening the door to a possible Pakistani conventional attack on India if a terror attack takes place on Pakistani soil by Pakistan's pre-determined adversary, that is, India. It is certainly not difficult to target the well-known terror planners and supporters who might be feeling secure sitting inside India.
- g) The new normal is that the old normal of international alarm will continue to compel the international community to intervene in any future Indo-Pakistan conflict, and prevent hostilities from going beyond certain well-defined parameters, well before touching the nuclear threshold. Whether Mr Modi likes it or not, Pakistan's nuclear weapons, which he referred to as nuclear blackmail, will continue to define the limits of his kinetic freedom of action.

The discussion on the current escalation will be incomplete without addressing India's action of holding the Indus Waters Treaty (IWT) in abeyance. It is a life and death challenge for Pakistan. Pakistan's National Security Committee (NSC) wasted no time in taking up the challenge by clearly declaring that any Indian tinkering with Pakistan's share of water from three allocated rivers, the Indus, the Jhelum and the Chenab, will be treated as an act of war and therefore

will be responded accordingly. India not to test Pakistan's resolve. There are numerous occasions in the past when India tested Pakistan's will and resolve and did not find Pakistan wanting in an appropriate response.

Nevertheless, in case India wishes to continue the path of provocative insanity, it will find that Pakistan has a variety of non-kinetic and kinetic tools in its toolbox to address this act of war. On the response rung, this may range from the lowest, that is, dialogue as provided for in the treaty itself, to the ultimate. Pakistan's often quoted four nuclear thresholds, point number three identifies that the economic strangulation is one of them. Do not test Pakistan's resolve; Pakistan will never permit economic strangulation.

As we celebrate Youm-e-Takbeer today, Pakistan's nuclear weapons program will continue to remain a robust deterrent and guarantor of peace and stability in South Asia. In the last six years, India's Hindutva-infested BJP has twice tested Pakistan's political will, resolve and military capabilities by striking mainland Pakistan and AJK. In February 2019 and now again in May 2025, India would be well advised to draw lessons from the two escalations and not to repeat a folly third time, expecting different results unless, of course, India wants to prove the theory of Lunacy as correct. India should rest assured that the third time around, too, it will find itself entangled in yet another politico-military disaster of its own making, especially when it comes up against the changed doctrinal environments due to Pakistan's further strengthened airpower which will be the dominant force in the South Asian airspace also due to the red lines imposed by Pakistan's nuclear policy of FSD. The latter will continue to attract international intervention, limiting India's strategic objectives to tactical employments only. Launching Brahmos and other standoff missiles from a safe distance and employing drone warfare as the main effort are not battle-winning strategies. The earlier India understands limits to its power and

absorbs the implications with a changed operational environment, the better it will be for India and world peace. The sane way forward would, in fact be for India and Pakistan to seize the opening and the opportunity provided by President Trump's diplomatic initiative by seriously considering taking a civilized path of dialogue and reconciliation to seriously address the conflict taking place in South Asia. That would be statesmanship of high order and a saner path of bringing peace and stability to South Asia. Generations will remember leadership for giving them a chance to live in an environment of peace and stability.

INTERACTIVE SESSION

Q: There is a prevailing sentiment in India, particularly among proponents of Hindutva, that India can afford to escalate sub-conventional operations against Pakistan without facing significant consequences. The Pulwama-Balakot crisis in 2019 was a turning point, as New Delhi opted for a more aggressive response than in previous incidents. In May 2025, New Delhi went ahead with more aggressive operations than in 2019. Looking ahead, what if Prime Minister Narendra Modi, driven by similar motivations, chooses to act in the same manner again? Furthermore, in the event of a future crisis, what if India resorts to cyberattacks targeting Pakistan's critical infrastructure? How would Pakistan respond to this kind of threat?

A: Cyberattacks are now a reality of life, and it is not something out of the blue, unknown or a surprise. This sort of operation has been going on for quite some time, even before the May 2025 conflict and so-called peacetime. Various disinformation labs were reported to be established by India all over the world for carrying out a variety of cyberattacks. Thus, Pakistan needs to be prepared for cyberattacks, and if it is not prepared, then it will suffer from cyberattacks. Moreover, India also suffered from these types of attacks in the recent conflict because Pakistan conducted a limited number of cyberattacks this time around. Hence, cyberattacks are a way and a reality of life. That's what is called cyberwarfare. Thus, a country must always be prepared for any kind of warfare.

Q: General Kidwai, in your 2002 interview you outlined the concept of thresholds, can you please shed some light on them again?

A: The concept of Pakistan's four nuclear thresholds, first articulated during the high-stakes environment of Operation

Parakram in 2001-2002, remains a cornerstone of its FSD doctrine. The thresholds, including loss of territory, serious degradation of military forces, economic strangulation, and domestic destabilization were publicly shared to communicate red lines that, if crossed by an adversary, could trigger a nuclear response. At the time, India had fully mobilized its military under Operation Parakram, with Pakistan responding in kind, and the environment was intense. While the articulation of thresholds was a response to that crisis, the framework was developed through extensive strategic contemplation within Pakistani circles. Importantly, these thresholds were not diluted over time. However, with over two decades having passed, marked by significant changes in technology, relative military capabilities, and regional dynamics, there is a growing need to reassess the validity and relevance of these thresholds.

From a Pakistani perspective, the deterrence value of nuclear weapons has not only endured but strengthened. A historical review highlights India's gradual erosion of viable military options. For instance, during *Operation Brasstacks* in 1986–87, India executed a large-scale mobilization under the guise of an exercise. It was then, for the first time, that a nuclear element entered the public discourse, following Dr Abdul Qadeer Khan's famous interview and subsequent signaling by Pakistani leadership. That moment marked a turning point, embedding the nuclear factor into the strategic calculus.

Subsequent crises, such as the *Kargil Conflict*, *Parliament Attack*, and again *Operation Parakram*, reinforced the message. Notably, during Kargil, no nuclear thresholds were crossed, and both sides exercised restraint despite the tactical intensity. However, in the aftermath, India began to conceptualize the CSD, a strategy designed for rapid, limited strikes below Pakistan's nuclear threshold. While publicly denied for years, the doctrine's infrastructure gradually put into place: Integrated Battle Groups

(IBGs), enhanced mobility, new command structures, and logistical networks to enable swift operations.

Yet, in practice, CSD has repeatedly failed to materialize effectively in incidents such as *Pathankot*, *Uri*, *Pulwama*, and the *Balakot airstrikes*. Despite the aggressive rhetoric, India has avoided full-scale mobilization or crossing into Pakistani territory in any meaningful way. Airspace and borders have remained largely inviolate. Even during escalatory moments, the Indian Navy has stayed hundreds of nautical miles away. This strategic behavior suggests a continued recognition of Pakistan's credible deterrence posture. India's shift to what is now termed a DRS incorporating cyber capabilities and limited kinetic strikes, represents an admission of the infeasibility of CSD. These newer approaches, though provocative, remain constrained and below the nuclear threshold, underscoring the effectiveness of Pakistan's deterrence architecture combining nuclear capability with strong conventional forces.

However, given the evolving character of conflict, particularly the emergence of non-kinetic and hybrid warfare domains, Pakistan must critically examine whether the thresholds articulated in 2002 are still fit for purpose. Today, threats such as economic coercion (e.g., weaponization of the IWT or maritime blockades of Strategic Lines of Communication) may warrant greater emphasis than traditional force-on-force engagements.

The key point is not to abandon the original thresholds which remain valid in scenarios involving total war but to contextualize them within contemporary conflict paradigms. Modern military planning must not prepare for the *last war*, but for the *next one*. Thus, strategic reviews and war-gaming exercises are essential to defining what thresholds would be applicable in future confrontations, especially as India experiments with evolving doctrines. In short, Pakistan's nuclear deterrence remains robust and credible. However, a review

and possible recalibration of its nuclear thresholds while preserving strategic ambiguity could further strengthen its posture and clarify its red lines in a transformed regional security landscape.

Q: There are a lot of new normals that have been set during the recent crisis between India and Pakistan. What should we call this recent military adventure that lasted for three and a half days? Is it a war or a crisis? What should be the key elements, Pakistan must focus on to win the war of narratives at the global level? Moreover, how should the nation prepare itself for fighting information, disinformation, and psychological warfare that has been ongoing?

A: In information warfare, our diplomatic community, which fights at a global level, can tell us how they fight diplomatic battles worldwide. Diplomacy is a function of a country's national power potential, and it has limitations. The diplomatic posture cannot deliver miracles if a state's national power potential is not strong enough. So, the national power potential of India is understood to be primarily driven by its economy. It will be reasonably clear from the outcome of the delegations that Delhi has sent abroad. They have sent out 60 people to 30 to 32 countries. When this feedback arrives, one can gain an understanding of their outreach efforts, particularly in situations where the international community recognizes that India was on the losing side in the recent crisis.

Internally, they have unleashed the media to convert all these lies into victory, that is their political angle for the elections. But internationally, the world knows that India has lost the recent military adventure. They may be polite about it, they may juggle their words about it, and they may say that there is no complete evidence, but deep down, stock markets do not lie. Stock markets have already spoken the truth, and the world follows it. However, the new normal that is discussed is now clearly visible; the PAF is the dominant airpower in South Asia. They are better professionals,

and they can make assessments. On the other hand, the IAF, whose center of gravity was a leading technology demonstrator, has been beaten up. They have been beaten up continuously, within an hour, and there is something wrong with the IAF systems. This was also evident during the press conference held by the Indian Air Chief, Air Chief Marshal Amarpreet Singh. He openly expressed serious concerns regarding both the quantity and quality of the IAF's fleet. Firstly, he reiterated the long-standing goal of maintaining 42 squadrons to effectively prepare for a potential two-front war against China and Pakistan, a target that remains unmet. Secondly, he lamented the prolonged delays in the Tejas program, a project the IAF has been waiting for nearly four decades without meaningful delivery.

The performance on April 7 and 29 reflects Pakistan's dominance in the air. Despite having confirmed targets locked on by PAF on April 29, Pakistan chose to let them go. Similarly, on the morning of April 7, Pakistan only engaged six Indian fighter aircraft and deliberately spared the others. Had all targets been pursued, the score could have easily stood at 16–0 in Pakistan's favour.

However, every engagement follows its own set of rules. What has emerged now is a new normal: Pakistan holds clear air superiority. This superiority has not only been demonstrated but is expected to grow further. In this new reality, a state that has lost control of the skies cannot effectively conduct major land or maritime operations. Any such attempt would be exposed and vulnerable because, without airpower, there is no real shield. The international community is already referring to these developments as acts of escalation, retaliation, and even a limited war. While it may not qualify as a full-scale conflict, its implications are profound and undeniable.

Q: One key outcome of the recent conflict is that, for the first time since 2008, the US President mentioned India and Pakistan

together—a major diplomatic gain for Pakistan. This moment of national unity is historic, but are we prepared to turn it into long-term nation-building? Also, given the complete breakdown in engagement since 2008, including no bilateral cricket series, can this be attributed solely to Prime Minister Modi, or are there deeper structural causes?

A: From an international and foreign policy perspective, Pakistan's delegation has faced numerous challenges. There is no doubt that the current strategic landscape presents considerable difficulties. India has been deeply engaged in war-gaming exercises; however, military assessments, especially regarding multi-domain operations may have been flawed. India either overestimated or underestimated these dynamics, possibly due to a lack of understanding. Interestingly, foreign policy has long been considered India's strong suit. With global goodwill on its side, largely due to its economic potential and alignment against China, India has traditionally enjoyed widespread international support.

Yet, two critical aspects seem to have been miscalculated: operations in Kashmir and the potential for US involvement in resolving the Kashmir dispute. Washington may not have anticipated a re-hyphenation of India and Pakistan in its strategic calculus. If this possibility had been considered, perhaps the US would have discounted it. However, current realities have contradicted such assumptions. Politically, a new normal is emerging as the Kashmir issue has returned to center stage, and the process of re-hyphenation is unfolding.

The recent India-Pakistan crisis has created a window for Pakistan's leadership to unify the nation and harness the national spirit that has developed. Bilateral relations with India have been deteriorating steadily, particularly since the 2008 Mumbai attacks and further under Prime Minister Narendra Modi's tenure. The responsibility for this regression has consistently fallen on India's side. Pakistan,

in contrast, has persistently advocated for dialogue. At no stage has Islamabad backed away from its stance in favor of peaceful negotiations. India's rejectionist approach, especially under the BJP over the last decade, has elevated the “no-dialogue” posture into official policy.

This is even though the Simla Agreement of 1972 provides a framework for bilateralism and dialogue. While Pakistan's National Security Committee (NSC) has mentioned this provision, it has yet to be formally highlighted in Simla's clauses. Nonetheless, Pakistan has indicated flexibility, even willingness to reconsider bilateralism, should India opt to abandon it. Thus, the onus of re-engagement lies squarely with New Delhi. When President Trump extended an offer for mediation, Pakistan welcomed it without hesitation. India, on the other hand, rushed to Washington, seeking assistance in securing a ceasefire.

That intervention proved effective this time, unlike in 2019. Back then, Pakistan responded with measured restraint, demonstrating the capability of PAF without causing collateral damage or directly targeting Indian military positions. The strikes served as a calibrated message, signaling that Islamabad possessed the reach and resolve. In the recent escalation, however, Pakistan's response was significantly more robust. According to the country's leadership, this marks another new normal: Pakistan's retaliation to any Indian escalation will be “a notch-up response”, escalation dominance. What was once framed as “quid pro quo plus” is now evolving into a possible “quid pro quo triple plus” posture. In conclusion, the strategic ball remains in India's court.

WORKING SESSION

- **Role of Scientists in Pakistan's Quest for Nuclear Weapons**

Mr Muhammad Naeem, NI, HI, SI, Advisor SPD on PAECAffairs & Former Chairman PAEC

- **Nuclear Deterrence and Strategic Stability in South Asia: Challenges and Opportunities**

Brig (Retd) Dr Zahir ul Haider Kazmi, Advisor Arms Control, SPD

- **Air Power, Conventional Escalation, and the Nuclear Overhang: Lessons from Operation Bunyanum Marsoos**

Air Comdr (Retd) Dr Adil Sultan, Dean FASS, Air University Islamabad

- **Prospects for Crisis Management Mechanisms and Confidence-Building Measures (CBMs) in a Post-Pahalgam South Asia**

Ambassador Sohail Mahmood, DG ISSI & former Foreign Secretary of Pakistan

- **Interactive Session**

Role of Scientists in Pakistan's Quest for Nuclear Weapons

Mr Muhammad Naeem, NI, HI, SI

Advisor SPD (PAEC) Affairs & Former Chairman PAEC

The Pakistan scientific community has played a major role in the making Pakistan's nuclear weapon program successful. It was a historic milestone. When saying the scientists, the term encompasses all the engineers, technicians, and technical people in the Pakistan Atomic Energy Commission (PAEC). The brilliance of these individuals, the preservers, has secured the nation's place in the annals of nuclear history. The successful nuclear tests in 1998 were a testament to their hard work, innovation, and unwavering dedication to their country.

Since the Second World War, nuclear weapons have been the most feared. For a small country, they are the great equalizer against a large adversary. For a large country, they are a symbol of prestige and scientific achievement. It was the prestige factor that our neighbour in the East embarked on a nuclear weapon program right after independence. A nuclear program requires a large group of theoreticians, researchers, engineers and other specialists who are well-grounded in scientific principles to plan and undertake this endeavour. Despite the overall spread of science in the world, nuclear weapon's related information is closely guarded with a healthy dose of disinformation. Every country which embarks on this journey has to start from the basics.

Pakistan's nuclear weapon program is thus the most significant scientific and technological achievement of the scientific community of the country. Driven by the strategic national security

concerns and following India's nuclear test in 1974, the nation put its trust and resources on the nascent and emerging group of scientists, engineers and technicians for this momentous task.

This journey was led by a visionary scientist supported by political leaders, diplomats and the public. Initially, the goal was to master the nuclear fuel cycle based on finding and processing uranium and other essential materials locally. One pressing requirement was to produce local uranium oxide fuel for Karachi Nuclear Power Plant (KANUPP-1), which was stopped by Canada following the Indian test in 1974. That was the time when Pakistan started the journey towards self-reliance and the indigenization. It was the first assignment which was undertaken for the manufacturing of KANUP bundles of the fuel, which gave the impetus.

This path required educated and trained manpower for developing a nuclear program. Countries like Iraq, Syria, Egypt, Iran and many more had many resources with no financial constraints but were unsuccessful in this field due to the lack of scientific acumen, trained and dedicated manpower. Under the leadership of Dr Ishrat Hussain Usmani, the then chairman of PAEC, Pakistan was able to develop a pool of exceptional scientists under the US Atoms for Peace program. The genius Dr Usmani sent some young, talented graduates to the leading research institutes and universities in different countries with the help of Dr Salam, a highly esteemed figure in the global scientific community. These graduates, after completion of studies, returned to Pakistan to lay the ground for nuclear research infrastructure. Some of the great names of this group included Mr Pervez Butt, Dr Ishfaq Ahmed, Dr Samar Mubarakmand, Mr Anwar Ali, Professor Muhammad Razi-uddin Siddiqui, Dr Muhammad Masood, Mr Hafiz Qureshi, Dr Inam-ur-Rehman, Dr Yunus, Dr Khalil Qureshi, Dr Shabir, Dr Meen-ud-Din Ahmed and many more.

Due to the urgent need for the program, these dedicated personalities became leaders of specific groups. Dr Usmani established a web of research, development and training institutions, including the Institute of Nuclear Science and Technology (PINSTEC) and the principal Research and Development (R&D) facility. In the light of restrictions on nuclear science, technology and education, essential institutions and training facilities like the reactor school, engineering and technical training institutions and Nuclear Power Plants (NPPs), including KANUPP and Chasma, were opened successfully. Associated institutions like the control computer center, Pakistan Welding Institute (PWI) and many other mechanical workshops were established by Mr Parvez Butt. Later, the reactor school was upgraded to a center for nuclear studies and finally became a degree in the institute which is known as Pakistan Institute of Engineering and Applied Sciences (PIEAS). The institute aims to train graduates in the fields of nuclear sciences, basic management, senior management and leadership courses.

During the famous 1972 Multan conference, the then President Zulfikar Ali Bhutto invited leading nuclear scientists and engineers to urgently embark on the development of Pakistan's nuclear program. He also asked about the time frame in which a nuclear device can be manufactured. There in that meeting, Mr Munir Ahmad Khan, a nuclear engineer working at the International Atomic Energy Agency (IAEA), was appointed as chairman PAEC. Mr Munir Ahmad Khan diverted more efforts to establishing essential material production facilities in addition to theoretical and basic scientific work. Although work was initiated on both enrichment and plutonium routes to produce nuclear devices, initially, more efforts were on the reprocessing route. As time progressed, more and more stringent sanctions and embargoes were imposed by the Western countries, hindering the reprocessing route. Pakistan then diverted its efforts towards the enrichment route.

Uranium enrichment requires hex gas (Uranium hexafluoride-UF₆) for the other centrifuges. PIEAS started work on exploration, mining and processing to produce yellow rays. Scientists in PIEAS during this time completed several industrial-scale plants for the refining of uranium, production of UF₄ and UF₆, along with other essential materials for weapon programs. Thousands of scientists, engineers and technicians worked tirelessly to produce intermediate products. These plants were indigenously designed, installed and operated for the production of highly corrosive and hazardous materials like hydrofluoric acid, sulfuric acid, fluorine and many more.

Meanwhile, Dr Abdul Qadeer Khan and his team established Engineering Research Laboratories (ERL) in 1976, later named Khan Research Laboratories (KRL). KRL succeeded in enriching uranium to the required level, which is an important step to produce nuclear devices. A by-product of enriched uranium is depleted uranium, which has many strategic materials and industrial applications, and it is being used accordingly in systems in PIAES and the National Engineering & Scientific Commission (NESCOM). Scientists like Mr Hafeez Qureshi, Dr Mohammad Masood, Mr Parez Butt, Mr Anwar Ali, Mr Irfan Barney, Dr Nabil Hayat, Mr Ghulam Nabi and many more were working on design and production facilities for CNA engineering and other testing facilities. Many specialized teams were simultaneously engaged in the development of high-explosive systems and the precise fabrication of uranium components. This stage required meticulous casting and shaping of the material, as the design, including the weight and geometry, directly influenced the device's yield and performance. Parallel to this, preparations for underground and cold testing facilities were underway under the leadership of Dr Samar Mubarakmand, Dr Tariq Jamal Suleja, and their dedicated teams. By this time, thousands of scientists, engineers, and technicians across more than 100 facilities were working tirelessly, around the clock, to achieve the critical milestones set before them.

These facilities, because of security and technical requirements, were in remote areas of the country where meagre civic amenities were available. In these remote locations, scientists worked in an extremely harsh environment with their families. Under the exceptional leadership of Muneer Ahmad Khan, Dr Ishfaq Ahmad, and the teams, Pakistan was ready in the early 1980s for the nuclear test. The Indian nuclear test of May 11 and 13, 1998, provided Pakistan the opportunity to demonstrate its nuclear deterrent capabilities. On May 28 and 30 of Pakistan became formally a nuclear power. This demonstration was not the culmination but a continued endeavor to achieve CMD and FSD.

With continued effort, focus shifted toward the plutonium route, which required a new set of specialized materials and infrastructure. Once the uranium enrichment program had matured, the PAEC resumed its work on the plutonium path. Upon the completion of key milestones, the associated manpower, resources, and technical expertise were redirected to support this parallel track. Essential fabrication work was undertaken, and new facilities were successfully designed, established, and operated, all indigenously. A critical component for reactor operations was the production of uranium metal fuel with special cladding, for which additional fuel fabrication facilities were installed, commissioned, and run entirely by local expertise.

This critical work was led by Dr N. A Javed, Mr Sultan Mehmood, Dr Shabeer, Dr Khalil, Dr Zafarullah, and their dedicated teams of scientists, engineers, and technicians. Among the most essential components developed alongside the reprocessing plant were high-level radioactive waste management facilities. These are vital, as the reprocessing process generates highly radioactive waste, primarily from fission products and unreacted portions of nuclear fuel, which poses significant radiological hazards. The handling, storage, and permanent disposal of this high-activity waste require advanced

safety measures and specialized infrastructure. These sophisticated facilities were designed and commissioned in accordance with the highest international standards and best practices, ensuring both operational safety and environmental protection. Pakistan is now in a selected group of countries which has completed the setup for the front end of the nuclear fuel cycle, starting with uranium exploration to the back end with reprocessing and high active waste management. This has all been achieved indignantly by the highly dedicated, trained manpower.

During all this work, prime importance was given to quality control, health and safety of the workers and security. Because of these measures, no health, safety or security incidents occurred during these extremely hazardous activities. FSD requires weapons as well as a delivery system to cater for different strategic needs like short, medium and longer-range requirements. Under the guidance of concerned authorities to all the strategic organizations, including PEAC, KRL, and NESCOM, Pakistan has successfully developed these capabilities for strategic and conventional defense. Scientists and engineers of the strategic organization, besides working on deterrence requirements, also did excellent work for the socio-economic development of the country, such as health, power production, agriculture, industrial and high-quality human resource development.

Nuclear Deterrence and Strategic Stability in South Asia: Challenges and Opportunities

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Pakistan's nuclear deterrent was never about dominance; it is and remains about restoring the equilibrium of power, perception, and responsibility. Pakistan's deterrence doctrine, its evolution, rationale, and structure, are based on FSD. Also, on how it has responded to destabilizing Indian conduct post-May 1998 through a logic that is measured, credible, and operationally integrated. However, there is another essential layer of deterrence: narrative and perception management, particularly how strategic stability today is shaped not only by platforms and postures, but by the signals, the metaphors, and how these are interpreted.

The May 2025 crisis was not just another India-Pakistan flare-up. It was a calculated attempt by a nuclear-armed state to re-test South Asia's deterrence thresholds. It once again seeks what it has long sought: a "new normal" under the nuclear overhang. This playbook has been seen before: 2002: coercive mobilization, 2008: blame attribution without forensics, and 2016–19: "surgical strikes" and performative airpower, but the crisis in 2025 was different. India escalated not just militarily but symbolically, naming its operation "Sindoor". That term, elsewhere, is not linguistically neutral. The word "Sindoor" in Hindu civilizational idiom is a marker of sanctity, sacrifice, and protection, and in this context, an assertion of righteous power. This was strategic semiotics, signaling that the kinetic act had a civilizational sanction.

In effect, India fused war, identity, and mythology into one message. In contrast, Pakistan responded with operation "Bunyanum Marsoos", drawn from Surah As-Saff in the Quran: "a structure

joined firmly, like a wall sealed with molten lead.” This was not a theological assertion. It was a strategic metaphor denoting unity, resolve, and defensive cohesion in the face of unprovoked aggression. But what did global discourse notice? The term “Sindoor” was passed off as poetic or cultural. Operation “Bunyanum Marsoos” was framed in some commentary as a religious assertion. This is the narrative asymmetry that skews deterrence interpretation. If symbolism from one state is romanticized while the other’s is pathologized, countries do not just distort analysis, rather distort escalation calculus itself.

A recent interview by a senior Indian official with Dutch media, where an attempt was made to label Pakistan’s civil and military leadership as radical and ideologically driven, even as India launched a military operation named after a sacred cultural symbol. This is not ironic; it is a strategic information operation. Such a projection is done for two reasons: First, to paint Pakistan as the irrational actor. Second, insulate Hindustan’s own provocations from scrutiny by shifting the moral spotlight. But this approach is analytically bankrupt and strategically dangerous. It ignores the fact that Pakistan’s response was legally anchored under Article 51 of the United Nations (UN) Charter. It sidesteps that Pakistan struck only military targets, avoided civilian areas, and issued no hyperbolic claims. It misreads doctrinal restraint as reactive passivity.

In the case of the recent crisis, Pakistan did not retaliate; rather, it responded, and the response implies calculated proportionality, not emotional reciprocation. India violated established norms across the Line of Control (LoC) and the international border. In return, Pakistan executed Operation Bunyanum Marsoos with precision, military targets only, calibration, no vertical escalation, clarity, limited objectives and a clear message. This is what Pakistan defines as Quid Pro Quo Plus (QPQ+), a doctrinal posture that blocks

escalation dominance, reasserts the firebreak between conventional and nuclear space, and normalizes deterrence by denial, not just by punishment.

A critical question arises: Why was Pakistan's National Command Authority (NCA) not convened during the May 2025 crisis? The answers lie in the credibility of Pakistan's conventional deterrent, anchored by the PAF and supported by precision-strike systems like the Fatah-series missiles. This was not a reactive decision; it was the expression of a deliberate and evolved doctrine. Since Balakot and now, after Operation Sindoor, some voices in Western policy circles have misread Pakistan's restraint as hesitation or, worse, incapacity. Such interpretations are not only flawed but dangerously simplistic. Restraint is not the absence of capability; it is the presence of judgment. Passivity stems from uncertainty; maturity is disciplined under pressure. Strategic depth does not manifest in loud threats but in calibrated clarity. Pakistan's response in May 2025 was doctrinally aligned, operationally precise, and diplomatically defensible. It restored deterrence without resorting to spectacle. It used force with accuracy, not aggression. It conveyed resolve without indulging in the theatrics of retaliation, and that is not weakness; rather, it is strategic mastery.

Yet despite this posture, commentary across some international platforms leaned toward imbalance. Some commentaries, including those by figures affiliated with Western think tanks, framed India's behaviour as evidence of "strategic boldness" while characterizing Pakistan's calibrated QPQ+ as "reactive" or "symbolic." This interpretive asymmetry matters because perceptions affect escalation thresholds and narratives influence policy advice to governments. Misreading restraint as weakness incentivizes risk-taking by the aggressor. Let's pose a simple question? Would North Atlantic Treaty Organization's (NATO) Operation Deliberate Force, targeting military infrastructure while avoiding political escalation,

be called “hesitant”? Would British restraint during the Falklands conflict, a war fought with force but not frenzy, be called “passive”? If Pakistan has exercised the same doctrine, then why is Pakistan’s response labelled through a different lens? Pakistan shoulders the burden of maturity with the discipline and responsibility expected of any major nuclear power and often, more so than Hindustan.

Strategic stability, especially between nuclear armed rivals, depends not just on the weapons they field but, on the narratives, they build and those built about them. Here is the danger: when civilizational metaphors are interpreted as poetic in one context and ideological in another, it distorts global perception. When one state’s invocation of mythology is viewed as patriotic and the other’s use of scripture as radical, analysis itself becomes a threat vector. We are not asking for special treatment. We are asking for strategic literacy. Pakistan’s terminology, Operation Bunyanum Marsoos and Marka-e-Haq, reflected a defensive ethos rooted in universal concepts: justice, resistance to aggression, and proportionality in warfare. These values transcend religious boundaries, are embedded in Abrahamic traditions, enshrined in the UN Charter, and embraced by responsible states all over the world. This is not to equate religious symbolism with aggression. It is asked that all civilizational references, whether Dharmic or Abrahamic, be interpreted contextually, not selectively.

Strategic stability is not a unidirectional virtue; it cannot be preserved by constant restraint from one side while permissiveness is granted to the other. The idea that India can repeatedly test space for limited war, absorb calibrated responses from Pakistan, and still claim the high ground is analytically indefensible. It also sets a dangerous precedent; it conditions strategic behaviour to reward the first use of force while scrutinizing legal and proportionate responses. If stability is to last, it must rest on reciprocal firebreaks. It must honour doctrinal maturity, not just strategic posturing, and

also, it must distinguish between restraint by design and rhetoric by default.

Nations live in a global system that is neither bipolar nor balanced. It is multipolar, yet asymmetrical, where perceptions often outrun policies, and where power projection is shaped as much by narrative influence as by actual capability. In this world, Pakistan's nuclear deterrent is not a peripheral artefact; it is a central pillar of South Asian stability. The recent crisis proved three truths

- a) India has not created a “new normal”; it only re-tested space for limited war and was denied by Pakistan.
- b) Pakistan's QPQ+ model is no longer episodic; it is the stabilizing constant.
- c) Strategic restraint, exercised through proportionate force and legal framing, is the true differentiator between doctrine and adventurism.

This strategic clarity must now be internalized by analysts and policymakers, not only in Islamabad and Delhi, but in Washington, London, and beyond. If deterrence is misunderstood as volatility, and stability is mistaken for inaction, the world may one day miscalculate the cost of indulgence. Strategic instability is not born of missile ranges or megaton counts. It is rooted in unresolved disputes and none more central than Jammu and Kashmir. The crisis of May 2025 did not begin in abstraction; it began in Pahalgam, under illegal occupation, with a false-flag operation manipulated for strategic narrative. So long as the Kashmir dispute remains unresolved and as long as the right to self-determination is denied through demographic engineering, repression, and disinformation, the strategic stability in South Asia will remain fragile: compressed, conditional, and combustible. Any analysis that attempts to address deterrence dynamics in the region without recognizing the centrality of Kashmir is not merely incomplete; rather, it is incoherent.

This moment, post-crisis, pre-escalation, offers three distinct lessons for the international community:

- **Narrative Discipline is Deterrence Discipline:** When language is weaponized, where Hindu symbolism is framed as culture, but Islamic references are dismissed as ideology, it does not just introduce bias; it distorts threat perception. Strategic signaling must be interpreted contextually, not selectively. Precision in narrative is as critical as precision in posture.
- **No Double Standards in Strategic Appraisal:** Geopolitically driven praise for India's so-called "restraint", while ignoring Pakistan's measured and calibrated responses, feeds dangerous illusions in New Delhi. It sends a signal that theatrical aggression may be excused, or even rewarded, if it is cloaked in clever messaging. Such asymmetry undermines regional deterrence.
- **Support Structures Must Match Stakes:** If the international community genuinely seeks strategic stability in South Asia, it must prioritize rules over roles. That means upholding international law, supporting meaningful dialogue, and rejecting any attempts to revise regional realities under the cover of nuclear brinkmanship. Stability cannot be sustained in selective silence.

Youm-e-Takbeer was not just a test; it was a testimony that Pakistan would not be coerced, would not be cornered, and would never be casual about its sovereignty. But Takbeer must always walk with Tamkin. It is a beautiful term from the classical lexicon, meaning composure, command, and clarity under pressure. Tamkin is not a slogan; it is a strategy in repose: command without provocation. And yes, in a world of mumification, where even strategic language is mocked in soundbites, some may attempt to distort serious words

with unserious rhymes. But as a nation, let us offer this reminder: the strength of a concept lies not in how it sounds, but in what it stands for. If rhyming is the standard, then let us offer them an alternative: Takbeer was our roar and Tawazun (balance & equilibrium) is our rule. Each time India unsettles strategic equilibrium, driven by its Hindutva-fueled Akhand Bharat ambitions and emboldened by extra-regional indulgence, Pakistan restores the balance. Not through bravado, but through calibrated resolve.

India's pursuit of Akhand Bharat, inspired by Hindutva ideology, echoes the logic of Nazi Lebensraum, grounded in civilizational entitlement, historical grievance, and strategic expansionism. This is not a comparison of regimes, but of doctrinal trajectories; both seek to redraw borders not for peace, but for ideological completeness. Such ambitions destabilize the region not only in the kinetic domain but in the cognitive space where dominance is recast as destiny, and restraint is painted as weakness. Whether we call it Tamkin or Tawazun, the meaning holds: Pakistan's deterrent is shaped by maturity, not momentum by foresight and not frenzy. That is what Pakistan demonstrated in 1998 and reinforced in 2025. And that is what Islamabad must continue to uphold: deterrence, not dominance; maturity, not menace; Responsibility, not rhetoric. To partners and observers: judge Pakistan not by the stereotypes it defies, but by the stability it sustains. To our adversary, let May 2025 be the final proof that every provocation will be met not with fury, but with foresight. And to the young minds hearing this, your inheritance is not just a weapon program, it is a national trust to protect peace with purpose, to guard sovereignty with scholarship, and to uphold restraint with resolve.

Air Power, Conventional Escalation, and the Nuclear Overhang: Lessons from Operation Bunyanum Marsoos

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Today, the world is undergoing rapid transformation and so is warfare. Emerging technologies are reshaping the battlefield, and in this evolving landscape, maintaining credible deterrence requires more than just hardware. It demands a national understanding of these technologies, how they function, and how they can be effectively integrated into defense and strategic planning. Let's begin by examining the role of airpower in conventional escalation, particularly in the context of India-Pakistan crises. Looking at the timeline post-1998 nuclear tests, the first major challenge Pakistan faced was the Kargil conflict. Whether labeled a conflict or a crisis, one thing is clear: India responded with significant escalation, testing the limits of nuclear deterrence early on.

In the Kargil conflict, India introduced the use of airpower and broader military force, while Pakistan chose to exercise restraint. The Pakistan Air Force was not mobilized and, by many accounts, was not fully brought into confidence during the episode. As a result, the outcome favored India, not just militarily, but narratively. India's prompt and visible use of its air force, coupled with an assertive strategic narrative, placed Pakistan on the defensive in the international perception. The next major episode came during the 2001–2002 military standoff, triggered by the attack on the Indian Parliament. This was a full-scale mobilization on both sides, the largest since 1971.

However, unlike Kargil, this crisis became a classic case of nuclear deterrence in action. While 1986 (Exercise Brasstacks) was the first time Pakistan indirectly invoked its nuclear potential to signal

resolve, the 2001–2002 standoff marked the first clear and sustained use of nuclear signaling. India mobilized and maintained its posture for nearly ten months but ultimately refrained from launching any conventional attack. Missile tests were conducted, political and military statements were exchanged, and behind-the-scenes diplomacy intensified. Eventually, it was international intervention, particularly from the US that helped de-escalate the situation and diffuse the crisis.

In the aftermath of the 2008 Mumbai attacks, India threatened Pakistan with an aerial surgical strike. Within hours, the PAF and its forward operational bases were mobilized, sending a clear and calculated message: there is no iron curtain shielding Indian forces from retaliation. While India had the capability to launch such a strike, Pakistan demonstrated that it possessed both the readiness and the resolve to respond in kind. As a relatively smaller country, Pakistan signaled that it could still inflict proportionate pain, both reputational and militarily, if challenged.

This posture likely played a decisive role in deterring India. The reality was simple: if Pakistan could not prevent an Indian incursion, Delhi too would not be able to stop a response from Islamabad. The psychological and strategic impact of a smaller airpower threatening credible retaliation altered the balance. In this sense, 2008 became a key episode where conventional deterrence held firm. Behind the scenes, of course, nuclear capability remained a stabilizing factor, providing Pakistan with the confidence that if the crisis escalated, it could still manage the consequences. However, the situation was contained within the conventional domain, and the role of the PAF was central. It not only enhanced Pakistan's deterrent posture but also shaped the optical and strategic narrative around escalation dominance.

In 2016, India claimed it had conducted ground-based surgical strikes across the LOC. Pakistan flatly denied the occurrence of any such incursion, and accordingly, no military response was initiated. However, India used this narrative to its advantage, amplifying the claim through media campaigns, official rhetoric, and even Bollywood films. It was during this time that the term “new normal” first entered the strategic vocabulary, suggesting that limited conventional strikes below the nuclear threshold could now be normalized. Pakistan's decision to deny and disengage was interpreted by some, in hindsight, as a missed opportunity. Many argue that if Pakistan had responded, even symbolically, it might have deterred future escalation. Instead, India was allowed to shape the narrative unchallenged, emboldening it to attempt a far more audacious act in 2019, the Balakot airstrikes.

The 2019 episode was a turning point. India conducted an aerial strike inside Pakistan's territory, beyond AJK, for the first time since 1971. Yet, within 24 hours, the PAF launched Operation Swift Retort, shooting down two Indian aircraft, including one over Pakistani territory. A helicopter was also downed, reportedly by India's own defenses in the fog of war, and an Indian pilot was captured. For a country seeking regional hegemony, this was a moment of visible strategic humiliation. Such a swift and calibrated response by Pakistan was not improvised; it reflected years of doctrinal development, training, and planning. The PAF had long anticipated scenarios involving limited war and surgical strikes and had prepared response frameworks well before 2019. This level of operational readiness likely emerged after the 2008 crisis and matured over the following decade.

Far from exposing a weakness in Pakistan's deterrence posture, Balakot reaffirmed its credibility. While some questioned whether deterrence had failed, since bombs were dropped on Pakistani soil,

the reality was the opposite. Conventional deterrence held firm, reinforced by the overarching confidence derived from Pakistan's nuclear capability. That confidence enabled Islamabad to execute a calibrated, proportionate, and politically effective response without crossing the nuclear threshold. In this entire episode, the role of the PAF was central, not only in operational execution, but in reasserting deterrence credibility at both conventional and strategic levels.

In the recent Pahalgam crisis, the PAF has demonstrated remarkable readiness and effectiveness. If the situation were to escalate further, Pakistan possesses an enhanced nuclear deterrent. As part of its strategic signaling, Pakistan conducted a series of conventional missile tests ahead of the military operation. These actions were calculated signals to convey to India that Pakistan can mount a conventional military response. However, if such measures prove insufficient, Pakistan retains the option of an unconventional (nuclear) response. This layered signaling appears to have shaped Indian strategic thinking in recent years, possibly contributing to their decision not to initiate a full-scale military operation.

To summarize the role of air power after the Gulf War, its utility was firmly established among major powers. For the first time in South Asia, air power played a prominent role, although the PAF had already performed exceptionally well in the 1965 and 1971 wars. Despite the loss in 1971, the Air Force's performance remained outstanding, though the focus then was primarily on land-based operations. Since the Gulf War, the prevailing global view is that air power will be a key military tool for achieving political objectives swiftly. Future wars are expected to be short, sharp, and complex, making air power central to regional crises. However, outcomes will also depend on other elements of national power. As noted, internal cohesion and broader support from national instruments of power will critically shape military operations. These considerations

remain vital. Additionally, the nature of future wars and how they are conceptualized and prepared for will play a decisive role. It is unlikely that India will escalate in the same way as in the past crises; it did not in 2025 as it did in 2019, nor 2008 as it had before. This shows that every crisis and conflict will be different. It is up to the militaries to learn the lessons and prepare accordingly.

Unfortunately, militaries around the world often prepare for the last war, drawing lessons from past conflicts and planning as if future wars will unfold in the same way. This approach is increasingly flawed, especially given the rapid pace at which new technologies are being developed and integrated into military strategies. The future of warfare will be defined by unprecedented speed and technological transformation.

The claim that Pakistan's nuclear posture has been undermined, or that there now exists greater space for conventional conflict between India and Pakistan, warrants serious scrutiny. A narrative is being pushed suggesting that Pakistan's nuclear deterrent has been discredited. Regrettably, some voices within Pakistan have echoed this view, often citing the events of 2019. The argument goes: Pakistan is a nuclear-armed state, yet India carried out a limited military strike. This raises important questions. Yes, Pakistan is a nuclear weapon state, but nuclear weapons are not a catch-all solution. They serve a defined strategic purpose and remain credible only within specific thresholds. If nuclear threats are issued in response to every minor provocation, the credibility of Pakistan as a responsible nuclear power risks being undermined. Nuclear capability must be matched with nuclear responsibility. Deterrence is only effective when it is applied rationally and within a framework that the adversary perceives as both credible and proportionate. This is a critical nuance that must not be overlooked.

Looking at the historical context, the notion of space for conventional conflict under the nuclear overhang has evolved through key regional crises. The 1998 nuclear tests by both India and Pakistan firmly established the reality that both are nuclear weapon states, effectively making large-scale wars between them obsolete. This principle was further reinforced during the 2001–2002 military standoff, which underscored that any full-scale war would carry the unacceptable risk of mutual destruction. Confronted with this strategic deadlock, India developed the CSD to test the boundaries of Pakistan’s nuclear threshold. The core belief behind this doctrine is that India can conduct limited conventional military operations without provoking a nuclear response from Pakistan. Islamabad, however, has consistently rejected the idea that any space exists for conventional conflict under the nuclear umbrella. Indian strategic thinking, in contrast, assumed that by mobilizing offensive formations within a compressed window, typically 48 to 96 hours after an incident, they could achieve limited military objectives before Pakistan could consider a nuclear response. This, in turn, was intended to give India a bargaining advantage by creating facts on the ground while staying below the perceived threshold of nuclear retaliation.

Had Pakistan allowed such a space to exist, it would have fundamentally undermined the credibility of its nuclear deterrent. The presence of even a single Indian boot stepping one kilometre (KM) into Pakistan’s territory would be unacceptable not just to the military but to the people of Pakistan. It would directly challenge the very foundation of the country’s strategic doctrine, which is designed to prevent Indian aggression through credible deterrence. To address this challenge, Pakistan developed TNW and adopted a FSD posture. These Short-Range Ballistic Missiles (SRBMs) were intended to plug any perceived gaps in deterrence. At the time, there was a degree of conceptual clarity around their purpose. Tactical

nuclear weapons were introduced with a specific purpose primarily to deter India, or what is often referred to as its limited warfighting doctrine. These weapons serve a clearly defined role within Pakistan's broader deterrence strategy.

Over time, however, there has been a shift in the terminology used to describe these terms, such as "SRBMs" or "low-yield nuclear weapons", which have emerged, largely under pressure from major powers who are inherently uncomfortable with the notion of tactical nuclear weapons. They often criticize their existence, urging restraint by labelling such policies as irresponsible. Importantly, this shift in language can unintentionally signal confusion or inconsistency in strategic thought. Clarity in deterrence communication is vital. If Pakistan begin to reclassify or downplay these systems under external pressure, it can risk diluting the credibility of the deterrence posture. Strategic ambiguity must never come at the cost of strategic clarity.

Pakistan's doctrine of FSD has always been unambiguous. It encompasses a spectrum of threats and a corresponding range of responses conventional and, if necessary, nuclear. Nuclear weapons are not the first line of defence; they are a last-resort measure when conventional responses are deemed insufficient. It never suggested that any incursion by Indian IBGs would be met with an immediate tactical nuclear response. That has never been Pakistan's stated position, nor should it be. As demonstrated in 2019 and again in 2025, Islamabad has a credible and effective conventional capability. If conventional military means can achieve the political objectives of a conflict, there is no rational basis for escalation to the nuclear level. So, when critics ask, "Why didn't Pakistan use nuclear weapons?" the response is clear.

The goal of any military conflict is political, and if that goal can be achieved through measured, conventional responses, then escalation is both unnecessary and counterproductive. If a state's political objectives are achieved, and it successfully communicates a credible message to its adversary, essentially signaling, "do not challenge us", then there is no rationale for invoking the notion of nuclear brinkmanship. This underscores the essence of FSD as it was originally conceived: to deter the full range of threats, from limited incursions to full-scale war.

For limited conflicts, Pakistan developed short-range or tactical nuclear weapons. In the event of an all-out war, although highly unlikely, strategic nuclear weapons aimed at counter-value targets would serve as a last-resort deterrent. However, it is important to emphasize that Pakistan has never adopted a first-use nuclear policy. Thus, assertions that Pakistan's "nuclear bluff" has been called are rooted in a fundamental misunderstanding of our doctrine. Islamabad's conventional response capabilities have always been credible and effective. As General Kidwai has eloquently stated that *"our armed forces have regularly conducted exercises since 2004 to ensure readiness. These exercises are not rhetorical posturing; they reflect strategic foresight and doctrinal evolution."* Pakistan consistently raised concerns with US and Western interlocutors in bilateral engagements, highlighting India's preparations for a limited war under its CSD. Yet, the official narrative from these states was dismissive, claiming that CSD was merely a Pakistani perception and not an articulated Indian policy.

Simultaneously, open-source intelligence, including Pakistan's monitoring of India's forward cantonments and logistics infrastructure, indicated preparations consistent with CSD's operational requirements. Eventually, India acknowledged the existence of CSD, despite earlier denials. However, due to the

strategic alignment between India and the US, Western skepticism toward Pakistan's concerns persisted.

Despite these challenges, the fact remains: since 2004, India has not been able to operationalize CSD during multiple crises. Significant financial investments have yielded limited strategic returns. Consequently, India has now transitioned to a DRS, a more flexible, technology-enabled approach to limited conflict scenarios. India, as a professional and resource-rich military, will understandably continue exploring strategic and operational options, and that is its prerogative. Pakistan, on the other hand, must pursue doctrinal and technological advancements within the constraints of its national resources and strategic culture.

From this trajectory, a few key lessons emerge. First, there is effectively no space for conventional war between two nuclear-armed states like India and Pakistan. Second, a core paradox lies at the heart of deterrence theory: conventional deterrence remains contestable, yet that does not render it ineffective. Nuclear deterrence, while incontestable, is not necessarily more credible unless supported by rational policy, credible capability, and responsible communication. This paradox must be acknowledged and managed wisely, especially in a region where the margin for error is dangerously thin. When conventional deterrence is contestable, it may tempt an adversary to take risks calculated or otherwise based on the assumption that such deterrence can be circumvented or absorbed. In contrast, nuclear deterrence is incontestable because it involves the potential loss of millions of lives. The stakes are exponentially higher, and the consequences irreversibly catastrophic. Yet, contestability should not be conflated with a lack of credibility. Just because conventional deterrence is open to challenge does not mean it lacks deterrent value. Similarly, nuclear deterrence, despite being incontestable, is not inherently

more credible. The credibility of any deterrence posture, conventional or nuclear, is shaped by a complex interplay of variables: doctrine, capability, communication, political will, and strategic culture.

Within this paradigm, strategists and scholars seek to explore the notion of “space” for conflict whether such space exists and how it might be exploited or denied. That exploration itself must be grounded in a realistic appraisal of national capabilities. Pakistan can look into some of these recommendations:

- India currently spends approximately \$78 billion on defense, while Pakistan’s budget stands at around \$11 billion. Given these constraints, it is imperative for Pakistan to prioritize its military spending in a future-oriented manner. As someone from the air force, this is not simply a preference; it is a necessity. Future warfare will be dominated by aerospace capabilities: manned and unmanned aircraft, space-based platforms, network-centric operations, and cyber-integrated warfare. Investment must be directed accordingly.
- There is growing public concern about how multiple drones have breached Pakistan’s airspace and questions around the BrahMos incident. These developments have sparked debate over the need for enhanced air and missile defense systems. However, a note of caution is warranted. Russia, with its advanced S-300 and S-400 systems and extensive space-based assets, has not been able to fully defend against Ukrainian drones. Even the US cannot claim to have a foolproof air defence against all missile threats. In close geographic proximity, such as South Asia, no missile defense system can guarantee interception if faced with saturation attacks. Moreover, cost-efficiency matters.

Modern drones can cost as little as \$5,000, while intercepting them with missiles costing hundreds of thousands of dollars is economically unsustainable. A country cannot use a \$500,000 missile to destroy a \$10,000 drone. That's not deterrence, that's depletion.

- From the Russia-Ukraine war, observe how cheap, low-tech but innovative tools like fibre-optic drones have bypassed high-end electronic warfare and Global Positioning System (GPS) jamming. Islamabad must absorb these lessons and invest in adaptive, scalable solutions rather than sinking billions into vulnerable, static systems. This does not mean Pakistan should avoid developing air defense capabilities; it simply means those investments must be intelligent, innovative, and contextualized. Blind replication of other countries' models will not serve our strategic needs.
- Everything in future warfare will be anchored in space: communication, surveillance, targeting, and coordination. Pakistan is significantly lagging in this domain. India, with strong US partnerships, has entered formal agreements such as: The Basic Exchange and Cooperation Agreement (BECA), the Space Situational Awareness Agreement, the Communication Compatibility and Security Agreement (COMCASA), which grant India access to advanced US space-based assets. Pakistan must not be complacent in response. While some argue we briefly gained access to certain satellite feeds during crises, it lacked an independent, sustained capacity to exploit such intelligence. That is a strategic vulnerability, not a success story. Superiority in space and network-centric warfare will determine future dominance.

- Acquisition of Artificial Intelligence (AI) assisted unmanned systems; drones, loitering munitions, and automated surveillance platforms, must be a central pillar of Pakistan's defense strategy. These technologies offer asymmetric advantages at manageable costs.
- There must be a concerted effort to strengthen the intellectual backbone of national security. As war becomes increasingly multi-domain, integrating air, land, sea, cyber, and space, strategic thinking must evolve accordingly. Think tanks, universities, and research institutions must take the lead in exploring new paradigms of deterrence, warfare, and security. Military institutions have long carried the burden of strategic thinking in Pakistan, but the challenges ahead require collaborative innovation. Young researchers, especially, must be encouraged to develop future-ready frameworks, informed by global trends but grounded in local realities.

Prospects for Crisis Management Mechanisms and Confidence-Building Measures (CBMs) in a Post-Pahalgam South Asia

Ambassador Sohail Mahmood

DG ISSI & former Foreign Secretary of Pakistan

The subject of crisis management mechanisms and CBMs is highlighted as particularly significant considering the recent Pahalgam incident and the ensuing military confrontation between India and Pakistan. However, within the current regional context and the trajectory of bilateral relations over the past decade, the prospects for meaningful dialogue and effective CBMs appear minimal, if not absent. The current situation, shaped by an intense and prolonged escalation, represents the gravest confrontation since the two countries became overt nuclear powers. A temporary ceasefire is in place, yet India has described this merely as a pause, indicating the continuation of “Operation Sindoor.”

This escalation has been compounded by various diplomatic and economic measures that remain in effect, including the downgrading of diplomatic ties, suspension of trade, disruption of people-to-people contacts, and the effective suspension of the IWT. Unlike prior crises, this episode has failed to create an opportunity for re-engagement or de-escalation. In fact, the crisis appears to persist, with Indian political rhetoric becoming increasingly belligerent. Indian leadership has issued aggressive threats, amplified by a media narrative that fuels war hysteria. These actions seem driven not only by strategic considerations but also by domestic political calculations, particularly with state elections approaching. As a result, the situation remains fraught with danger, demanding continued vigilance and preparedness on Pakistan’s part.

Stepping back from the immediate crisis, the relationship between India and Pakistan has remained largely frozen over the past decade, primarily due to the policies of the current Indian government. Since 2014, there has been no structured dialogue between the two states. India has taken an increasingly rigid stance on the Kashmir issue, with the unilateral actions of August 5, 2019, representing a major turning point. The trend of military adventurism has also intensified, exemplified by the 2016 so-called surgical strikes, the 2019 Balakot airstrikes, and the recent large-scale attacks involving standoff weapons, drones, and missiles deep into Pakistan's territory.

This period has also seen a rise in state-sponsored terrorism attributed to India, particularly in Balochistan, as well as actions intended to undermine Pakistan's strategic partnerships, notably with China under the China-Pakistan Economic Corridor (CPEC). Other hostile measures have included extrajudicial assassinations within Pakistan, economic coercion through attempts to blacklist Pakistan in the Financial Action Task Force (FATF), pressure on the European Union (EU) to revoke Pakistan's Generalized Scheme of Preferences (GSP) Plus status, and efforts to complicate Pakistan's negotiations with international financial institutions. Additionally, India has weaponized trade, water, and sports, while actively obstructing regional cooperation platforms like South Asian Association for Regional Cooperation (SAARC). A broader campaign has been orchestrated to portray Pakistan as a state in political turmoil, economic crisis, diplomatic isolation, and regional alienation.

This cumulative pattern reflects a deliberate strategy aimed at dismantling the foundational architecture of bilateral engagements. Long-established structures, mechanisms, and legal agreements have been systematically weakened or suspended. Three primary factors seem to be driving this strategy.

- a) The first is an inflated perception within India of its strength and ability to coerce Pakistan into submission, an unrealistic and misguided belief that nonetheless persists.
- b) The second is the influence of the Hindutva ideology, which shapes both domestic policy and foreign relations. Domestically, it seeks to transform India into a Hindu Rashtra, with serious implications for minorities and Kashmir. Externally, it is tied to the concept of Akhand Bharat, which envisions a Greater India encompassing present-day Pakistan, Bangladesh, Nepal, Sri Lanka, and parts of other neighboring states.
- c) The third factor is domestic political expediency, with a pattern of leveraging anti-Pakistan sentiment for electoral gains becoming a hallmark of the ruling party's campaigns. Despite various setbacks, there has been no observable strategic reassessment in New Delhi. On the contrary, Indian policy continues to be guided more by emotion than rationality. This posture has been characterized by hubris, unilateralism, and strategic overreach. Though the limitations of such a strategy are evident, Indian leadership appears committed to repeating the same tactics without achieving different outcomes. This trajectory fundamentally undermines any serious conversation about CBMs or crisis management mechanisms at present.

Historically, South Asia has been a crisis-prone region, with India-Pakistan relations particularly susceptible to conflict. Since the mid-1980s, crises have emerged at regular intervals, each marked by increased intensity and complexity. Earlier instances, such as the Brass Tacks crisis, were resolved primarily through bilateral channels, utilizing tools like troop mobilization, nuclear signaling, hotline communications, and back-channel diplomacy. However,

the erosion of these mechanisms in recent years, combined with the prevailing hostile environment, makes it increasingly difficult to envision similar outcomes in future crises. The current landscape of bilateral relations calls for urgent international attention and a reassessment of regional crisis management architecture. Without a change in New Delhi's approach, particularly its ideological orientation and politically motivated hostility, prospects for strategic stability in South Asia will remain bleak. Confidence-building and crisis mitigation can only proceed in an environment of mutual respect, dialogue, and rational state behavior conditions that are presently absent.

In the history of India-Pakistan crises, third-party, particularly US involvement, has played a consistent role in calming tensions and pressing both sides toward de-escalation. In the 1990 crisis, during the peak of the Kashmir movement, Robert Gates, former US Secretary of Defense visited both countries to manage tensions. The Kargil conflict saw a notable US role, especially during the July 4 meeting between Prime Minister Nawaz Sharif and President Clinton, which, despite its outcome being seen as favorable to India, helped bring the crisis to a close. Following the Indian Parliament attack, US Deputy Secretary of State Richard Armitage engaged in back-channel diplomacy, contributing to the eventual 2003 ceasefire agreement. In 2004, when Prime Minister Vajpayee visited Pakistan, the US again played a behind-the-scenes role that culminated in the January 2004 Joint Statement. The 2016 Uri incident, in which India claimed a surgical strike, did not escalate significantly, limiting the scope for third-party involvement. However, during the 2019 Pulwama-Balakot crisis, the US again intervened late in the escalation but still played a part in defusing tensions. Similar patterns were observed around the 2021 reaffirmation of the ceasefire, when the US, along with countries like Saudi Arabia, United Arab Emirates (UAE), Iran, Qatar, and Turkey, as well as the

UN Secretary General, urged restraint and encouraged direct communication. The recurring theme has been those third-party interventions, especially by the US, have been central to crisis management between India and Pakistan.

Yet, India's approach to third-party involvement is marked by inconsistency. Publicly, New Delhi expresses strong opposition to any external mediation, especially on conflict resolution or the Kashmir dispute. But in practice, India is open to such involvement when it aligns with its interests, for example, in cases of counterterrorism pressure on Pakistan, FATF compliance, or regional stability narratives. India resists any third-party engagement that includes references to Kashmir or conflict resolution. This duality is likely to continue, with India accepting external involvement when it supports its position but pushing back when it challenges its strategic stance.

CBMs have historically served as an important instrument for managing risks, reducing unpredictability, and improving bilateral trust. When the composite dialogue was launched in 1997, peace and security, including CBMs, was the top agenda item and assigned to the foreign secretaries. In 1999, the Lahore Declaration and its accompanying Memorandum of Understanding (MoU) introduced several ideas, including nuclear risk reduction and consultations on nuclear doctrines. While some of these ideas remained unimplemented, they reflected the seriousness of nuclear engagement at the time. However, India later avoided substantive nuclear dialogue with Pakistan, stating its main threat was China, and never formally responded to Pakistan's proposal for a nuclear restraint regime announced in May 1998. Some nuclear CBMs were eventually formalized.

The agreement on the advance notification of ballistic missile tests, for example, remains in force, though it does not cover cruise missiles. The most enduring nuclear CBM is the non-attack agreement on nuclear facilities, born from an understanding between General Zia-ul-Haq and Indira Gandhi, and formalized in 1991. Every year, both sides exchange lists of their nuclear installations on January 1st, even during periods of high tension. Similarly, agreements on the advance notice of military exercises and the prevention of airspace violations continue to function. Perhaps the most impactful CBM has been the 2003 ceasefire understanding along the LoC. Though unwritten, it was reaffirmed multiple times over the years. After periods of violation, including from 2008 onwards, the February 2021 reaffirmation significantly helped restore calm along the LoC. Loss of life and material damage decreased, and the overall security environment improved. The role of the Director Generals of Military Operations (DGMOs) has also been vital. Their regular communication helps address operational matters along the LoC and working boundary, with flag meetings and direct contacts resolving many issues. The 2021 reaffirmation of the ceasefire and related understandings were also facilitated through this channel.

There were additional tracks that supported CBMs but have since become dormant. Regular interactions between India's Border Security Force (BSF) and Pakistan Rangers, as well as between maritime forces like the Indian Coast Guard and Pakistan Maritime Security Agency (PMSA), once helped manage cross-border and maritime incidents. Another institutional mechanism, the Indus Waters Commissioners under the IWT survived major crises and wars, but has now been suspended, with the treaty effectively in abeyance due to current tensions.

Despite their limited scope, CBMs have proved valuable and should be preserved. In the current context of deteriorating bilateral relations, these guardrails are essential. Abandoning or letting them lapse could worsen unpredictability and instability. For Pakistan, the priorities must include crisis prevention, management, conflict avoidance, escalation control, and ultimately conflict resolution. All these goals require sustained communication, even if modest or indirect. Nevertheless, significant challenges stand in the way. The relationship is deeply strained, with trust at an all-time low, political will absent especially on the Indian side and the unresolved Kashmir dispute continuing to fuel tensions. While third-party involvement has been helpful, it has limits and cannot replace direct communication and political engagement.

A realistic and pragmatic path forward is necessary. First, the existing DGMOs communication channel should be preserved and enhanced in both frequency and scope to help avoid misunderstandings and consolidate the 2021 ceasefire. Second, revival of the backchannel dialogue is essential. While it cannot resolve disputes, it can be effective in crisis prevention and management, provided the interlocutors are fully authorized and capable of implementing any agreed measures. Third, both countries should consider curbing disinformation and inflammatory rhetoric, which often worsens crises. A code of conduct to manage propaganda, perhaps initiated through Track II channels, should be explored. Discreet dialogue among think tanks and strategic institutions like National Defence University (NDU), Nationally Determined Contributions (NDC), and Institute of Strategic Studies Islamabad (ISSI) should be revived. These can explore future CBMs, tackle issues like emerging technologies, and work toward developing shared understandings of security concepts. Unfortunately, the current prospects for formal dialogue or meaningful breakthroughs remain dim. But this is the challenge of

responsible statecraft. As the saying goes, Pakistan must hope for the best while preparing for the worst.

Interactive Session

Q: The question concerns the nature of political and diplomatic communication with India, particularly given India's apparent reluctance to engage constructively at the diplomatic level or participate in meaningful dialogue. Despite this persistent disengagement, there appears to be a continued effort to present Pakistan as the responsible actor or the "achcha bacha" (God Boy) of South Asia. What is the rationale behind maintaining this approach?

A: Pakistan's approach toward India remains deliberate and principled. Sustainable peace in South Asia requires dialogue, negotiation, and resolution of long-standing disputes. Historically, even during periods of conflict, diplomatic channels were not severed. After the 1971 war, both sides returned to the negotiating table, resulting in the Simla Agreement. Similarly, despite the 2008 Mumbai attacks, the composite dialogue process resumed within months. These precedents underscore the importance of dialogue in achieving peaceful coexistence. The current Indian government, under the BJP, has adopted a markedly different policy and strategic posture compared to previous administrations. While Pakistan consistently conveys its willingness to engage in dialogue, it does so with clarity and confidence, not desperation. No unilateral concessions should be made solely for the sake of initiating talks.

Instead, India must take meaningful steps to reverse its recent actions and create a conducive environment for purposeful and result-oriented engagement. Pakistan's official communication reflects this nuanced stance. It emphasizes sovereign equality and mutual respect. For example, if India insists on excluding the Kashmir dispute from any future dialogue, that approach is unacceptable. Kashmir remains central to the conflict, and ignoring it undermines the legitimacy and effectiveness of any engagement. Importantly, Pakistan's constructive posture is recognized positively by the international community. By maintaining diplomatic maturity and restraint, Pakistan strengthens its global standing while exposing India's intransigence. This role as the more responsible actor unsettles New Delhi, which often attempts to portray Pakistan through the lens of terrorism. Pakistan's consistent position of openness and responsibility contrasts sharply with India's narrative. This dissonance puts India on the defensive, especially when it attempts to label Pakistan in negative terms.

Q: The concept of the "commitment trap" mentioned by General Khalid Kidwai. It was highlighted that this trap involves not only the Indian political leadership but also the Indian military establishment. What, then, is the ultimate objective of this trajectory when analyzed from a cost-benefit perspective?

A: The concept of the "commitment trap," primarily applies to the Indian political leadership, though the military is also implicated. Prime Minister Narendra Modi, having built a political image centered on strong nationalism and an aggressive stance toward Pakistan, finds himself constrained. Statements suggesting punitive actions against a nuclear-armed neighbor have raised expectations that are difficult to meet without risking escalation. This was evident in 2019, when escalation was followed by rapid de-escalation, resulting in political embarrassment.

Militarily, India cannot be characterized as weak, militarily. However, it lacks the confidence and capacity for sustained engagement with Pakistan under nuclear overhang conditions. While India continues to invest in high-end technologies, such as Anti-Ballistic Missiles (ABMs) systems and Intercontinental Ballistic Missiles (ICBMs), these systems do not align with the operational requirements of an India-Pakistan conflict. Moreover, their strategic relevance in a South Asian context is questionable. This disconnect between India's political leadership, military planning, and scientific community indicates an incoherent strategic vision. The political foundation of this posture lies in the rise of Hindutva-driven ideology. The BJP's pursuit of a hegemonic Hindu nationalist agenda has reshaped both domestic and foreign policy. Internally, this has led to increased polarization and violent extremism. Externally, it contributes to a rigid, confrontational stance toward Pakistan. The "commitment trap" reflects a broader strategic inflexibility. By overcommitting to a confrontational narrative for domestic political gain, the Indian leadership has limited its own options in managing crises and pursuing genuine peace.

Q: Given the current public dissatisfaction in India, is it likely that Prime Minister Narendra Modi will win the 2029 elections? And if Congress comes to power, could it improve India-Pakistan relations? Also, since economic interests often shape global views, has Pakistan's recent success changed international perception, making India look more regressive? Will this perception last, or should Pakistan invest more to strengthen it?

A: There are a few key points to consider. It was often said that India's armed forces were unhappy with the Prime Minister Narendra Modi government, mainly due to a lack of funding. The air force faced serious challenges, and morale was low. Modi's

justification was that there would be no war, so heavy military spending wasn't needed. Modi also built a tough image; his "56-inch chest" slogan reflected this. But crises do not follow scripts. Escalations can happen quickly, and India often ends up seeking international help to manage the fallout. A serious concern is the growing influence of Hindutva ideology within Indian institutions, including the military. Some appointed chiefs show open or hidden support for this ideology, which weakens professional neutrality and makes them loyal to political leaders. Prime Minister Modi knows he lost politically in the recent episode, and there is a cost to India's image. His future depends on key state elections in Bihar (2025) and others in 2026. If the RSS feels he has failed, they may remove him. The BJP strategy remains the same: unite the Hindu vote and spread fear about minorities. Pakistan-bashing also remains a key part of their election playbook. Given this, real change in India-Pakistan ties is unlikely soon. Pakistan should stay principled and continue to follow international norms and laws.

CONCLUDING PLENARY

- Dr Bilal Zubair
Director Research, CISS
- Gallery

Concluding Remarks

Dr Bilal Zubair

Director Research, CISS

Today marks not just the commemoration of Youm-e-Takbeer but also the reaffirmation of Pakistan's unwavering commitment to ensuring peace, stability, and deterrence in South Asia. On this significant day in our national history, it was heartening to witness such a rich exchange of ideas and perspectives on a subject that continues to shape the strategic environment of our region.

Let me begin by extending our deepest gratitude to our keynote speaker, Lieutenant General (Retired) Khalid Ahmed Kidwai. His address not only reflected the foresight and prudence that went into crafting Pakistan's nuclear policy but also underscored its role as a guarantor of regional peace. His vision into the evolution of Pakistan's strategic doctrine and its alignment with deterrence stability was invaluable and set the tone for the deliberations that followed.

Mr Muhammad Naeem shared a compelling account of the role of the Pakistani scientific community in achieving nuclear self-reliance under immense international pressure. His remarks reminded us of the unconquerable spirit of our scientists and engineers, whose dedication fortified Pakistan's sovereignty. Brigadier (Retired) Dr Zahir ul Haider Kazmi joined us virtually and delivered a highly relevant discourse on contemporary challenges and opportunities for strategic stability in South Asia. His assessment of emerging regional dynamics and nuclear deterrence nuances enriched our collective understanding.

We are equally grateful to Air Commodore (Retired) Dr Adil Sultan for his thoughtful presentation on the interlinkage of air power and nuclear deterrence. His analysis of conventional escalation and its implications for crisis stability, particularly lessons drawn from recent operational Bunyanum Marsoos, was particularly instructive. Our appreciation also goes to Ambassador Sohail Mahmood, whose remarks on prospects for crisis management mechanisms and confidence-building measures resonated deeply. His diplomatic insights and diplomatic assignments added immense value to our discussions, especially in the context of a challenging post-Pahalgam regional environment.

I would like to acknowledge the enthusiasm and engagement of our participants, particularly Engineers, diplomats, scholars, analysts, professionals and students, whose presence and queries during the interactive sessions reflected the vitality of our strategic discourse. Equally, no event is successful without meticulous work behind the scenes. I wish to thank the entire CISS research and administrative team for their tireless efforts in organizing this seminar, managing logistics, and ensuring seamless coordination.

As we conclude today's proceedings, let us remember that Youm-e-Takbeer is not merely a historical milestone but a perpetual commitment to national security, regional peace, and responsible stewardship of our nuclear assets. Today's deliberations reaffirmed Pakistan's responsible nuclear posture, adherence to international safety and security standards, and readiness to engage in meaningful dialogue for strategic stability. We sincerely hope that the conversations initiated today will continue in various academic, diplomatic, and policy-making circles, contributing towards a more peaceful, balanced, and stable South Asia. Once again, my deepest gratitude to all of you for making this seminar a meaningful and memorable event.

GALLERY



















