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Nuclear Deterrence in an Emerging Multipolar World: India's Strategic Position and Challenges

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ABSTRACT: This paper examines India's strategic Position in an emerging multipolar world and the challenges that India is facing amid this era of nuclear deterrence. Deterrence has long been a core element of national security strategy, particularly for states in a contested political and military context. At its basic level, deterrence aims not to fight and win a war but to stop an adversary from starting one by convincing it that the costs of war will outweigh any potential gains. It is based on capability, credibility, and communication. It is necessary for a state to have sufficient material means to impose unacceptable costs or deny an adversary its political and military aims; that state should have a credible commitment to take advantage of those capabilities in certain circumstances; it should communicate its resolve well enough for the adversary to comprehend it. Deterrence, in this sense, is material and psychological at the same time. Its effectiveness ultimately depends upon not only the presence of military power but the perception of that power and the willingness to use it. But conventional and nuclear deterrence operate in very different ways. Conventional deterrence works in that it seeks to avoid aggression by being able to deny an adversary a rapid military victory or to inflict high costs on an offensive action. Nuclear deterrence is qualitatively different, since nuclear weapons are capable of destroying the human population and can potentially escalate into catastrophic war. The advent of nuclear weapons changed the equation of military capability to political function. Nuclear forces became more than simply weapons to accomplish battlefield objectives but weapons whose primary purpose was to prevent certain kinds of war.The paper argues that technological transformation, combined with the increasing interdependence of nuclear rivalries, is gradually eroding the analytical adequacy of traditional bilateral deterrence models. India consequently confronts a dual strategic challenge: maintaining credible deterrence against two nuclear-armed adversaries with substantially different capabilities and strategic doctrines while avoiding destabilising

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arms competition and unintended escalation. By locating India within the broader transformation from bipolar to multipolar deterrence, the study seeks to contribute to contemporary debates on whether classical deterrence theory remains sufficient for explaining strategic stability in an increasingly technologically complex and interconnected nuclear order.The bulk of the classical nuclear deterrence theory was developed in the Cold War context. Mutual vulnerability, second-strike capability, escalation control, and mutually assured destruction were the pillars of the Cold War environment. The superpowers constructed more sophisticated nuclear systems and explored limited nuclear options, but the basic perspective remained very bilateral. Strategic stability was therefore understood mainly through the interaction of two main nuclear adversaries who were making efforts to maintain credible retaliatory forces and to prevent a direct nuclear war that might escalate into all-out war.

INTRODUCTION

The current world of nuclear power is considerably more complex. Cold War bipolarity did not change the strategic significance of nuclear weapons. Instead, the expansion and modernisation of nuclear weapons, China's rise, the new strategic competition between Russia and the West, India-Pakistan rivalry, and North Korea's nuclear development have all contributed to a more interrelated nuclear order. So today's deterrence works through a network of strategic relationships rather than a single nuclear dyad. The United States–Russia, United States–China, China–India, and India–Pakistan relationships cannot always be viewed in isolation because changes in the capabilities or tactics of one actor may trigger strategic responses from other players. As a result, nuclear multipolarity gives rise to an interconnected deterrence environment in which strategic moves can be made between nuclear actors. Such changes raise serious questions regarding the effectiveness of deterrence theories developed primarily in bipolarity. Strategic deterrence among several nuclear actors is not only bilateral deterrence multiplied several times but also multilateral deterrence. Diverging military capabilities, political intentions, geographical vulnerabilities, technological capabilities, nuclear doctrines, and perceptions of acceptable risk can lead to misperception and escalation that may not correspond to the classical models of strategic stability. On the one hand, a strategy that is meant to strengthen a state's deterrence may cause others to react negatively, and they may come up with countermeasures to protect the security of all. That is especially true if nuclear rivalries collide and an area of conflict is being fought between more than one state. India has emerged in this new strategic environment, and its nuclear posture cannot be explained by one one-sided battle.

India's Evolving Security Environment: The China–Pakistan Strategic Challenge

India is now faced with a complex nuclear deterrence equation with two nuclear-armed neighbours, China and Pakistan, with different military capabilities, strategic goals, and nuclear doctrines. Pakistan's nuclear posture has been mainly determined by its strategic rivalry with India, while India's nuclear calculus extends beyond Pakistan to China's growing and more advanced capabilities. China's nuclear modernization is also intimately linked to its broader competition with the United States. As a result, India is in the middle of a nuclear chain in which strategic developments outside South Asia can also affect the regional deterrence calculus. The China-India-Pakistan nuclear triangle poses India with a very grave strategic challenge. New Delhi must maintain credible deterrence with adversaries with very distinct conventional and nuclear capabilities and avoid arms racing, crisis instability, and accidental escalation of war. Hence, India's stated commitment to credible minimum deterrence and its historical political tradition of strategic restraint in the presence of ongoing military modernization, territorial disputes, and unresolved geopolitical conflicts is a challenge. The challenge is not just to gain more destructive capability, but to maintain the survivability, credibility, and proportionality of deterrence while still maintaining political space for crisis management and diplomatic engagement. Technology is also changing this equation. Developed ballistic and cruise missile systems, missile defense, precision strike capabilities, nuclear-powered ballistic missile submarines, and other survivable platforms are changing the calculus of vulnerability and retaliation. At the same time, artificial intelligence, autonomous systems, cyber capabilities, advanced surveillance, and space-based assets are rapidly integrating with nuclear command, control, communications, and intelligence systems. These technologies can

enhance situational awareness and improve the survivability and effectiveness of deterrent forces. But they can also shorten decision-making time, generate uncertainty about the intentions of the adversary, undermine command and control infrastructure, and make it difficult to distinguish conventional and nuclear operations. Technological superiority is not necessarily a guarantee of strategic stability. In India, a comprehensive and technology-enabled deterrence policy must be accompanied by diplomatic and institutional processes that can mitigate the threat of strategic competition. Military preparedness, survivable retaliatory capability, and credible signalling are still essential elements of deterrence, but they alone cannot provide stability. Crisis communication, confidence-building measures, doctrinal clarity and mechanisms for preventing miscalculation are all more important when nuclear relations and new technologies intersect. Effective deterrence in a multipolar environment is therefore about reconciling two goals that may at times run in opposite directions: having enough capability and credibility to prevent aggression, but also doing so without increasing insecurity and escalation risks. In light of this, this paper considers India's position in a changing nuclear deterrence system in a world that is rapidly becoming multipolar.

The paper addresses three interrelated questions: how has the transition from bipolar to multipolar nuclear politics changed the traditional logic of deterrence and strategic stability, how does the interconnected China–India–Pakistan strategic relationship affect India's deterrence requirements and how are the new technologies increasing India's credibility, survivability and escalation dynamics? India's current nuclear dilemma can not be understood in the conventional bilateral deterrence model, the paper argues. So India operates in an asymmetrical and interconnected deterrence system where the development of one side of the strategic relationship is in turn reflected in others. To maintain strategic stability, we can't just talk about the development of deterrence capabilities but we need to have a whole approach of credible retaliation, technological upgrade, doctrinal control, crisis management and long-term diplomacy. So India's experience provides a window to consider the theory and practice of nuclear deterrence in a multipolar nuclear world. India's evolving security environment: The China–Pakistan strategic challenge. And so, India's deterrence structure has evolved in a very complex regional security environment where conventional, sub-conventional, nuclear, cyber, space and maritime threats are more and more merged. At the heart of this is India's strategic relationship with two nuclear-armed neighbours, China and Pakistan. These relations cannot be seen as separate security equations. China's growing military capabilities and strategic reach, Pakistan's continued reliance on nuclear deterrence against conventional asymmetry with India, and the growing strategic partnership between Beijing and Islamabad have all led to a more complex security environment. India needs to formulate its deterrence strategy not only against two foes, but also within a strategic context in which developments on one side of the border can change the calculations on the other side. China is the more profound long-term strategic challenge, and for that reason the economic, technological and military capabilities of India and China are so far very different.

The PLA's modernisation has dramatically changed the nature and scale of the problem. The reforms under Xi Jinping have turned the PLA from a largely manpower-based territorial force to a technologically advanced military capable of conducting joint operations in land, sea, air, space, cyber and information. The transformation of the former military units into theatre commands was particularly important for India because the Western Theatre Command took over the entire land border between China and India. The Chinese military modernisation is emphasizing joint operations, precision strike, information supremacy, long range firepower, quick mobilisation and integrated command and control capabilities. In this way, the security calculations for India along the Line of Actual Control (LAC) can no longer be based only on the comparison of conventional ground forces. The strategic problem is now to build ground formations with air power, missile forces, intelligence and surveillance systems, electronic warfare, cyber capabilities and space-based infrastructure. Yet geography remains a major factor that impedes the operations of military forces on the Himalayan border as high altitude and difficult terrain, narrow communication routes and severe climatic conditions limit logistics and large scale operations. Historically these factors have offered some advantages to defensive operations. On the Tibetan plateau, however, the development of infrastructure (roads, railways, airfields, logistics facilities and communications networks) has enhanced the capacity of China to mobilize and sustain troops close to the disputed frontier. So the strategic question for India is not just the number of troops in the PLA but the speed at which China can organise and maintain technologically integrated forces in a theatre. The development of the PLA Rocket Force (PLARF) adds to this imbalance. China has a wide variety of

conventional and nuclear-capable ballistic and cruise missile systems and is capable of long-range precision strikes on military bases, air bases, logistical centres and command-and-control facilities. The mobility, dispersal and survivability of these systems make them more powerful deterrent tools against a threat but also make an adversary's targeting calculation more difficult. China's continuous development of multiple independently targetable re-entry vehicles (MIRVs), hypersonic systems and more advanced delivery platforms further complicates India's situation in the strategic arena, which means India needs to have a credible retaliatory capability.

China's sea-based nuclear forces are just as important. The progress in the development of nuclear-powered ballistic missile submarines does help Beijing to have a more survivable nuclear deterrent, which does not depend solely on land-based forces. From the Indian point of view, with China's nuclear triad, the deterrence needs to be designed to be more based on geographically dispersed and survivable Chinese nuclear forces rather than a relatively limited land-based arsenal. This will place more emphasis on India's own nuclear forces being able to survive, command-and-control systems, early warning and second-strike capability.

Cyber, Space and Technological Perspectives

The strategic competition is also transpiring in cyber and outer space. Modern military operations rely on satellites for communication, navigation, intelligence, surveillance, reconnaissance and targeting. China's anti-satellite capability in 2007 indicates the vulnerability of space-based infrastructure during a major conflict. With India's economy and military capabilities rapidly dependent on satellite networks, protection and redundancy of space assets have become a core part of national security. Cyber capabilities make space security vulnerable too. Cyber attacks on communications networks, critical infrastructure, financial systems or military command-and-control structures could play a role in conventional military operations without, in fact, crossing the traditional line of armed conflict. The combination of cyber, electronic warfare, artificial intelligence and space-based surveillance makes it a challenge to distinguish peace from crisis, and between war and war. More importantly to nuclear deterrence, if the early-warning or command-and-control systems are disrupted, an attack could be conventional, counterforce-oriented or aimed to damage nuclear capacity for retaliation. This ambiguity can lead to a lag time for decision-making and to the possibility of accidental escalation. The maritime dimension has also grown more important. The transformation of the PLA Navy (PLAN) from a predominantly coastal force to a blue-water navy has also extended China's strategic reach beyond the West Pacific. The naval deployments and anti-piracy operations and access to overseas logistics facilities (including the base at Djibouti) demonstrate the ability of Chinese naval forces to function far from the mainland. China's involvement in ports and facilities in the Indian Ocean has therefore generated a lot of political debate in India. But the frequent phrase 'String of Pearls' is not exactly true. Commercial ports are not Chinese military bases. Their strategic significance, then, is that these facilities, logistics and maritime infrastructure are likely to allow for a more sustained Chinese naval presence in the Indian Ocean during times of increased competition. For India, a regular presence of PLAN in the Indian Ocean would gradually transform a region in which India had a considerable geographical edge. Pakistan and the Stability-Instability problem. Pakistan is in a different but closely connected deterrence challenge. Pakistan, unlike China, has a huge conventional asymmetry with India. As such, nuclear weapons have become a core element of Islamabad's national security strategy and have been an alternative to India's larger conventional capabilities. This asymmetry has led to what deterrence scholars call the stability–instability paradox: strategic stability generated by mutual nuclear vulnerability can coexist with, and even lead to, lower-level conflict below the nuclear threshold. The history of India–Pakistan relations demonstrates that this remains a problem. The wars of 1947-48, 1965 and 1971, the Kargil conflict of 1999, the continuing conflicts over Kashmir, cross-border terrorism and recurrent military conflict have all culminated in a security balance between conventional competition and nuclear risk that has not diminished since the nuclearisation of South Asia in 1998. As a result, crises between India and Pakistan have meant the policymakers have to consider not only the immediate consequences of going to war but also how conventional conflict could escalate. Pakistan's development of a diverse nuclear arsenal has complicated things even further. Its nuclear forces now have multiple delivery systems that can operate in different ranges. Most notably, Pakistan has developed short-range nuclear-capable systems on the basis of its concept of Full Spectrum Deterrence to deter not only large-scale strategic attacks but also different forms of conventional war with India. The introduction of tactical or battlefield-oriented nuclear alternatives is quite a difficult situation for Indian deterrence. In Pakistan's perspective, such capabilities

may serve to enhance India's deterrence by eliminating the possibility that it could deploy conventional superiority below Pakistan's strategic nuclear threshold for an operation of nuclear weapons. In the case of India, however, decreasing the level at which nuclear weapons might enter a war would escalate the risks of war. A limited conventional conflict might also provide a context for nuclear signalling, dispersal or deployment very early in a crisis. And this is where conventional and nuclear deterrence become increasingly intertwined. India needs to have enough conventional capability to respond to major provocations without creating a situation where nuclear stability is threatened. Pakistan, however, must remain credible with respect to its nuclear deterrent but should not take risks below the nuclear threshold. The relationship demonstrates that possession of nuclear weapons is not a guarantee of strategic stability.

China–Pakistan Strategic Nexus

When China and Pakistan are analyzed together, India's security problem is even more complex. The China-Pakistan strategic partnership includes defence cooperation, military technology, infrastructure, diplomatic cooperation and broader geopolitical interests. From New Delhi's perspective, closer Sino-Pakistani strategic cooperation also means that India might need to plan for both war and crises on its western and northern frontiers. A "two-front" or potentially interlinked problem has been increasingly important in Indian strategic thinking. But one should not take it as a short-term view that China and Pakistan will come together to attack India at the same time. China and Pakistan have different objectives, risk calculations and military preferences. The more pressing issue is that India cannot optimize its military and nuclear capabilities exclusively against either adversary without considering the consequences for the other strategic relationship. This has an important asymmetric nuclear chain. Pakistan calibrates much of its nuclear posture against India; India has to calculate its deterrence requirements against both Pakistan and China; and China's nuclear modernisation is driven by the strategic relationship with the United States. So technological or doctrinal changes in US-China strategic competition in the US-China competition may have consequences for India and eventually Pakistan. The expansion in Chinese nuclear capabilities might encourage India to enhance its deterrent capabilities and to increase range, survivability and sophistication of its deterrent; the implications of India's strengths and weaknesses will then have on Pakistan's nuclear calculus, if not more so. The regional nuclear order is becoming more and more interlinked with the global nuclear balance. The challenge for India is to not only match China and Pakistan weapon for weapon. Such an approach is not consistent with minimum deterrence, and will lead to an expensive and strategically destabilising arms competition. India should not expect that no potential adversary can achieve decisive conventional objectives at a reasonable cost or that India's capacity for nuclear retaliation will be neutralised. It is survivability that is to be the focus of India's nuclear strategy. A credible deterrent is secure second-strike capabilities, reliable delivery capabilities, hardened and redundant command-and-control structures, reliable early-warning systems and sufficient technological resilience against cyber, space and precision-strike threats. At the conventional level, deterrence means rapid mobilisation, theatre-level capabilities, intelligence and surveillance capabilities, air and maritime power and enough logistical infrastructure to stop an adversary from having an instantaneous fait accompli. But military capability cannot guarantee strategic stability. The growing interplay between nuclear weapons, precision conventional strike, cyber operations, artificial intelligence, missile defence and counter-space technologies opens up new avenues for misperception and accidental escalation. India's evolving deterrence architecture has to marry technological development and doctrinal credibility, crisis communication, diplomatic channels and confidence building. India's security environment therefore shows the central problem of nuclear deterrence in a multipolar world. The challenges of nuclear deterrence in a multipolar environment are no longer limited to maintaining a sustainable nuclear balance with one opponent. India is embedded in an interrelated strategic system in which China's military modernisation, Pakistan's nuclear posture, Sino-Pakistani cooperation and greater great power competition are involved. The efficacy of India's deterrence will not be so much in terms of numerical parity as in being able to maintain credible, survivable and technologically resilient deterrence while simultaneously raising the stakes across multiple domains and against more than one nuclear-armed opponent. India's evolving deterrence requirements: capability, technology and strategic flexibility. The security environment of India is changing rapidly and an India-centric deterrence is needed as a response to threats that no longer exist in the sense of conventional military and nuclear war. China's modern military capabilities are being rapidly advanced, Pakistan's nuclear posture is evolving,

and precision strike technologies and cyber, space and artificial intelligence are being more and more significant, which means that a purely reactive conception of defence is no longer sufficient. But a proactive deterrence strategy should not be seen simply as a shift to offensive military doctrine. India needs to develop capabilities of being prepared to detect vulnerabilities and to deny opponents the opportunity to rapidly gain military advantages, to maintain credible retaliatory options and to manage escalation across different domains. So deterrence is not solely about numerical military expansion but preparedness and resilience.

India's Evolving Requirement of Deterrence and the Contemporary World

Historically, India's conventional force structure was oriented more towards territorial defence and operational requirements of Pakistan and China. This type of policy is now even more difficult to sustain when both the two security zones are intermingled and the military operations themselves are becoming multi-domain. Contemporary warfare combines land, air, sea, cyber, space, electronic and information capabilities. So for India, strategic adaptation has to move beyond service-specific approaches to wider cooperation, interoperability and well-integrated command structures. The success of military power in this context will not depend on the number of personnel or platforms available but on the integration of intelligence, surveillance, reconnaissance, communications, precision firepower, logistics and decision-making in a coherent command structure. This is especially important at the Sino-Indian border. The mountainous terrain of the Himalayas is still a big logistical hurdle to large-scale military operations, but there is a growing reliance on infrastructure and long-range precision capabilities that are changing the strategic calculus around the terrain. India needs robust border infrastructure, better surveillance, improved mobility and distributed logistics, and enough long-range conventional capabilities to prevent an adversary from achieving a rapid fait accompli. The purpose of such capabilities is to deter by denial: to convince an adversary that very little territorial gains can be made at a very reasonable cost in terms of the military and political costs. Air power is especially important at this point in time. The ability to retain air superiority, provide support to ground forces, conduct surveillance and reconnaissance, and perform precision conventional operations are all directly linked to the credibility of conventional deterrence.

India's concerns of combat-squadron strength, force growth and the availability of advanced platforms need to be viewed from the perspective of the broader need of integrated air-land operations. Unmanned aerial systems, remotely operated platforms, precision guided munitions and better sensor networks can complement conventional aircraft and alleviate some of the challenges of difficult terrain and high-altitude operations. The maritime domain is another key component of India's future deterrence strategy. India's geographical location has great strategic advantages in the Indian Ocean Region (IOR), but these advantages can't be treated as permanent. China's growing naval reach and increasing stability of deployment outside the western Pacific are the very reasons that India should get better at maritime domain awareness, anti-submarine warfare, fleet survivability, logistics and partnership with other maritime actors. But the aim should not be to achieve numerical parity with the People's Liberation Army Navy and not only to maintain a sea-control and sea-denial capability to protect India's maritime interests and prevent an opponent from establishing uncontested strategic leverage in the Indian Ocean. From Platform-based to Technology-Enabled Deterrence. The bigger change in Indian defence planning is the relationship between manpower and technology.

Today's deterrence is increasingly dependent on the ability to detect, identify, communicate and respond to threats quickly and effectively. Intelligence, Surveillance and Reconnaissance (ISR), secure communications, precision guided weapons, unmanned systems, electronic warfare and command and control networks can therefore be key force multipliers. This technological change means organisational transformation. A force based mostly on large formations and platform numbers doesn't always make for good deterrence under a time of precision weapons and real-time information. The continued development of jointness and integrated theatre-level planning in India needs to be supported by the Army, Navy and Air Force to increase coordination and integrating cyber, space and information-based capabilities in the national defence planning from the top down. This is not only organisational efficiency, but a quicker and more reliable process for intelligence acquisition, political decision making and military response. The long-range conventional precision-strike capability is also an essential aspect of this transformation. With the advancement in missile technology, states are able to put strategically important military assets at risk

without crossing the nuclear threshold. Such capabilities could strengthen India's conventional deterrence by making a military strategy of an adversary more difficult and therefore increasing the cost of aggression. At the same time, though, conventional and nuclear-equipped delivery systems may give rise to difficulties. A potential adversary might not know if an incoming missile is conventional or nuclear if they see it coming. The development of long-range precision systems should therefore come with a lot of careful doctrinal signalling as well as escalation-management steps. Unmanned aerial vehicles and other remotely operated systems have a great potential for reconnaissance, surveillance and precision.

Space and the Emerging Multi-polar Nuclear World

High-altitude surveillance platforms can provide situational awareness along challenging fronts, while unmanned systems can perform missions that personnel and expensive systems would otherwise be exposed to a great deal of risk. Artificial intelligence can also upgrade data processing, sensor integration, early warning and decision making. But too much reliance on automated systems has its own flaws, especially when data is incomplete or cyber-interference or algorithmic error can affect decisions on a high-speed scale in a rapidly evolving world. Space, Cyber and the Increasing Multi-Domain Deterrence Environment. We have hence made space an integral part of India's security architecture. Satellite communication, navigation, meteorological information, intelligence and surveillance are now crucial in modern military operations. The vulnerability of these assets to kinetic and non-kinetic counter-space attacks means that deterrence is not just about having space capabilities but also about having resilience. Redundancy, distributed satellite architectures, secure communication systems, and the ability to carry out essential operations after they are disrupted become a key aspect of Indian strategic planning. The same logic applies to cyberspace. Today, the digital networks of modern command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) systems are interlinked. Cyberattacks on these systems could disrupt military operations while also posing a threat to nuclear command and control. Cyber resilience is thus not only an essential defensive technology but also as a critical component of strategic stability for India. The combination of cyber and space capabilities with conventional and nuclear systems also raises some issues related to the escalation hierarchy. An attack on a satellite or communication network might be seen differently based on the time of day, border conflict or the fact that there is ongoing conventional warfare on the ground. A single operation to disrupt conventional communications might have an effect on the nuclear forces. Multi-domain deterrence therefore needs to be able to distinguish between different types of attack and to keep communication going even when technology is disrupted. Pakistan and the issue of limited conventional response. Pakistan presents a different set of requirements for Indian conventional deterrence. Both sides have nuclear weapons and there is a very low probability of an unlimited conventional war. As a result, the main strategic question is not if India is capable of imposing costs on Pakistan but if conventional military options can be considered credible and not escalate into a nuclear war. In Indian strategic debate, this issue was particularly relevant after the Kargil war and subsequent India-Pakistan crises. Rapid mobilisation and limited conventional operations were developed as the long mobilisation period limited political and military options in a crisis. Pakistan's development of short-range nuclear capabilities and Full Spectrum Deterrence has, in turn, been part of the attempt to confuse Indian calculations on limited conventional operations. The result is to show the classic problem of action and reaction in deterrence. Solutions adopted by one state to secure its security may also trigger countermeasures by another, and both of them could be less secure at the same time. India should therefore be able to maintain credible conventional response options, but to do so in a way that military doctrines do not encourage Pakistan to go nuclear first. Speed and precision can strengthen conventional deterrence, but they can also slow down the decision-making time of the adversary. The strategic value of the limited conventional options therefore should not only be evaluated in terms of their effectiveness in the field, but how it will affect the stability of crisis. That is where the Cold Start debate goes wrong. Instead of treating fast conventional operations as an automatic response to sub-conventional provocations, India's strategic planning needs to look at how mobilisation, force concentration and precision-strike capabilities are perceived by Pakistan. A credible doctrine should provide political leaders with graduated response options and still be flexible enough to terminate the war before escalation becomes unmanageable. Conventional deterrence under the nuclear shadow is therefore dependent on both military capability and political control of escalation. Enhancing India's Nuclear Deterrent Survivability. The nuclear dimension remains the ultimate basis of India's deterrence

against existential military threats. But nuclear modernisation should not be a competition with China and Pakistan. India's stated doctrine of credible minimum deterrence means that the adequacy of its arsenal should be evaluated in terms of survivability and credibility of retaliation rather than numerical superiority. A survivable nuclear triad is therefore important. Land-based missiles are able to move and spread out; aircraft have flexibility and signalling options; and nuclear-powered ballistic missile submarines can provide better assurance for retaliation by making the complete elimination of India's nuclear forces much more difficult. Range, accuracy, mobility, penetration capability and secure communications can also enhance deterrence by increasing confidence that enough retaliatory forces would survive an initial attack. Developments in missile defence make it a more complex equation. Ballistic Missile Defence (BMD) can help protect strategic assets from small missile attacks and increase their protection to a limited extent. But missile defence can also lead to countermeasures to ensure penetration like bigger salvos, manoeuvrable delivery systems and multiple warheads. BMD must therefore be seen as a part of a deterrence system rather than as an alternative to an assured capability to retaliate. MIRVs, manoeuvrable re-entry vehicles and hypersonic delivery systems also make strategic stability more difficult. They may enhance survivability and penetration capability, but their speed, manoeuvrability and uncertainty may reduce warning time and increase pressure on decision makers in a crisis. So their strategic value must also be weighed in conjunction with the deterrence value and the potential of arms competition. This distinction is especially important for India. At least at the technological level, the aim of modernisation should be to preserve a credible second-strike capability and not to get more nuclear war-fighting power. A transition towards capabilities that would enable India to conduct disarming counterforce attacks would be disconcerting and cause a more competitive nature to take place and would affect India's ability to remain defensive from the brink of war with other countries and would be a threat to the principle of non-nuclear balance of power that has been accepted as a prerequisite for India's own nuclear posture. Towards Integrated Deterrence with Restraint. India's future security needs are not limited to only increasing the size of its armed forces or the number of weapons. The new strategic environment demands an integrated deterrence architecture that integrates conventional military capability, survivable nuclear forces, maritime capabilities, cyber resilience, space-based infrastructure, technological innovation and effective political control. However, such integration must be balanced by discipline. The central paradox of deterrence is that steps that would enhance one state's security could only increase another state's sense of vulnerability. In a triangular nuclear relationship between China, India and Pakistan, this security dilemma is even more acute as a development of these capabilities can generate cascading responses across more than one strategic dyad. In this sense, India's strategic challenge is to achieve capability but without arms racing, preparedness and technological modernisation without compromising on the stability of crisis management. The design of the deterrence architecture should ensure that adversaries do not have confidence in the ability to achieve fast military objectives while maintaining the ability to respond quickly to existential threats. At the same time, there should be diplomatic communication, confidence-building measures, doctrinal clarity and secure crisis-management mechanisms in place to support military preparedness. So, the future of Indian deterrence is not going to be about unrestricted expansion but selective modernisation, jointness, resilience, survivability and escalation control. Such an approach is particularly appropriate in an emerging multipolar nuclear order in which the credibility of deterrence is increasingly based on the interaction of conventional, nuclear, cyber, space and technological capabilities. India's ability to integrate these domains while maintaining strategic restraint will be critical not only to its national security but to the stability of the Asian nuclear order.

India's nuclear deterrence strategy evolved in a complex strategic environment which mainly involves its relationships with China and Pakistan and is characterized by unresolved territorial disputes, recurrent military conflicts and asymmetric conventional and nuclear capabilities. Yet India's strategic requirements in relation to the two states are not the same. Pakistan's nuclear posture is largely determined by its battle with India and India's nuclear calculations should take into account Pakistan's full-spectrum deterrence strategy and China's much larger and technologically advanced nuclear forces. This creates a triangular deterrence environment where a strategic relationship can affect the calculations in another relationship. India has generally presented itself as a conventional nuclear power in a status quo world with the primary aim of maintaining national sovereignty, territorial integrity and strategic autonomy and avoiding major wars. It was in this context that the nuclear posture of India emerged. The Draft Report of the National Security Advisory Board on Indian Nuclear Doctrine in 1999 laid out the

principles of credible minimum deterrence, survivability and retaliation. Those principles are now made explicit in the nuclear doctrine of India in January 2003. India said that nuclear weapons would serve mainly as a retaliatory part and that it would maintain its No First Use policy and would retaliate if there is a large biological or chemical attack. As such, the core logic of Indian doctrine rests on deterrence by punishment and retaliation. Its effect is not that of achieving numerical parity with foes but that enough nuclear forces would survive an initial attack and that some sort of damage would be too big to be suffered. Survivability, secure command and control, mobility and dispersal, and the diversity of delivery systems are now far more important than the numerical comparison of nuclear warheads. But the changing strategic environment raises questions about how to understand "credible minimum deterrence" in today's context. Credibility can't be a technology or strategic constant. Improvements in missile defence capabilities, counterforce capabilities, surveillance systems, precision conventional weapons, cyber operations and counter-space technologies can alter perceptions of the survivability of retaliatory forces. Therefore, a "minimum" deterrent is likely to depend on the capabilities of the potential foes. India's nuclear policy will need to address these two elements in order to keep the credibility of retaliation against both China and Pakistan and not lead to an open-ended arms competition that would undermine the restraint that is present in minimum deterrence. This tension between technological change and doctrinal prudence is one of the most important challenges facing Indian nuclear policy in a multipolar world. From bipolarity to multipolar nuclear deterrence. The classical nuclear deterrence theory was developed primarily within the bipolar strategic framework of the Cold War. The United States and the Soviet Union faced severe crises and undertook huge nuclear modernization, but the deterrence dynamics were most heavily based on the interaction of two main nuclear foes. Mutual vulnerability, secure second-strike capability and the risk of unacceptable retaliation were the very basis for strategic stability. The current nuclear environment is quite different from the classic nuclear environment. The international nuclear order is increasingly characterized by multiple nuclear weapons states with very different capabilities and strategic doctrines and overlapping geopolitical conflicts. The United States, Russia and China are the most active but other countries like India, Pakistan and North Korea have a big impact on the stability of strategic balance in their regions. The nuclear multipolarity thus involves more than one nuclear weapons state but a lot of interdependent deterrence relationships. It is important to distinguish between multipolar deterrence and a bilateral nuclear system in which nuclear war and escalation are more complicated. In bipolarity, strategic decisions were more likely to be based on a single principal adversary. In a multipolar nuclear order, the military modernisation of one state may trigger reactions from many others. China's nuclear expansion, for example, will probably be primarily related to its calculations of the United States but can also affect India's nuclear planning. If India's capabilities change, then Pakistan's perception of its own deterrence requirements will change too. The effects of strategic modernisation can thus move through an interconnected deterrence chain. The asymmetry also gets worse with multipolarity. Nuclear powers differ by arsenal size, delivery system, technological sophistication, doctrine, conventional military capabilities and perception of risk. Deterrence relationships are therefore not the same and cannot be assumed to work in that way. A strategy that stabilises one nuclear dyad may bring insecurity in another. So nuclear deterrence today is about more than the ability to retaliate against a nuclear power. And strategic stability is about communication, transparency, arms-control arrangements, crisis management and political restraint. Deterrence must be coupled with institutional buffers to mitigate uncertainty and prevent misinterpretation. The absence of such mechanisms is particularly apparent when nuclear rivals have repeated military crises. The emerging multipolar nuclear system must thus be viewed as a dynamic, interlocking strategic environment, not as a simple replacement of bipolarity by a larger number of independent nuclear powers. Its stability will ultimately come from how states understand one another's capabilities, doctrines and intentions and if we have mechanisms to prevent competitive modernisation from spiralling into a violent escalation.

India's Nuclear Modernization and Deterrent with Restraint

The Development of India's Nuclear Deterrent. Technological transformation is one of the most important drivers of change in nuclear deterrence. India's nuclear modernisation has been increasingly focused on increasing the range, survivability, penetrability and diversity of its delivery systems with a view to improving the credibility of the assurance of the retaliation. Developments in longer-range ballistic missiles, sea-based nuclear capabilities, ballistic missile defence, multiple independently targetable re-entry vehicle technologies and improved command-and-

control systems reflect this more general transformation. There is also great importance to India of the development of a sea-based component because ballistic missile submarines can provide increased second-strike survivability. A dispersed and hidden submarine fleet makes it very hard for an enemy to kill the whole nuclear deterrent with a first strike. The development of a nuclear triad therefore strengthens the credibility of retaliation and reduces reliance on vulnerable land-based systems. MIRV technology is also of interest in deterrence as a single missile can carry potentially multiple independently targetable warheads. Such systems can improve penetration against missile defences and improve survivability of retaliatory capability. At the same time, they can complicate strategic stability by increasing the destructive capabilities of individual delivery platforms and incentivizing adversaries to improve their own defensive or counterforce capabilities. Ballistic Missile Defence adds another layer of complexity. Small defensive systems might protect some strategic assets or population centres from missile attacks. But when deployed, they can also encourage adversaries to create penetration aids, bigger salvos, manoeuvrable re-entry vehicles or more sophisticated delivery systems. So defensive technological innovation can lead to offensive countermeasures and show how apparently stabilising capabilities can end up with new security dilemmas. Artificial intelligence, autonomous systems and unmanned platforms are also transforming strategic calculations. India has been experimenting with drone swarms, autonomous surveillance systems, unmanned underwater platforms and AI-assisted defence applications. Artificial intelligence can help with Intelligence, Surveillance and Reconnaissance, situational awareness and reducing risks to personnel. And it also can help with faster processing of information and more accurate identification of potential threats. But AI-enabled warfare is dangerous. Autonomous or semi-autonomous systems may be slow to respond to crises, depend on algorithms for decision making and generate uncertainty about whether the military can be directed and commanded by humans itself. Erroneous identification, cyber manipulation or malfunctioning autonomous systems could result in unexpected military encounters. These risks become more serious when conventional and nuclear command systems are highly integrated in the electronics. Cyber warfare also complicates nuclear deterrence. Cyber capabilities will boost defensive resilience and intelligence gathering, but cyber attacks on command-and-control systems may be perceived as undermining nuclear retaliation against them. In a high-stress situation, uncertainty of whether an intrusion is espionage, disruption, or preparation for a disarming strike could increase escalation pressure. Space-based systems are indispensable for modern deterrence too. Satellites provide communication, navigation, reconnaissance and early warning for communication, targeting and targeting support. They have grown in military importance and are therefore an ideal target in a war. So India needs to not only consider space-based systems but also redundancy, resilience and protection of necessary assets. The main challenge with advanced technologies is paradoxical. They can make nuclear forces more survivable, accurate and credible; they can reduce warning time, blurring lines between conventional and nuclear operations, and heighten the risk of inadvertent escalation. India's technological modernisation needs strong political oversight, human oversight of nuclear decisions and institutional mechanisms to not allow technological supremacy to undermine strategic stability. South Asia's evolving nuclear security architecture. South Asia is one of the most complex nuclear security environments. India and Pakistan are nuclear-armed foes with a history of conventional war, unresolved territorial disputes, cross-border security tensions and decades-long diplomatic and military crises. The emerging strategic involvement of China in the wider region further complicates the picture, where South Asian deterrence can be linked to the Asian and global balance of power. The Indian Ocean is becoming increasingly important in the region as well as a centre of strategic rivalry. India has historically enjoyed many political advantages from its central location in the Indian Ocean region but the expansion of Chinese maritime activities and the rise of other countries are changing the balance of power in the region. Modernisation of ships and submarines, access to overseas facilities and competition over maritime infrastructure are increasingly associated with nuclear deterrence with the fact that the nuclear forces deployed against sea have to operate in secure and survivable environments. The growing interplay between continental and maritime security means that South Asian strategic stability can no longer be solely evaluated on the basis of land-based India-Pakistan rivalry. China's presence in the Indian Ocean, India's maritime partnerships and the development of sea-based nuclear deterrents have gradually widened the regionally-based security competition. This transformation will be made even more rapid by emerging technology: artificial intelligence, semiconductor technologies, autonomous systems, unmanned aerial and underwater systems, precision-strike weapons, cyber capabilities and military applications of space technology. So the future military competition in South Asia will not only be determined by the traditional measures of troop

strength, aircraft or warhead numbers but also how states will integrate information, sensors, computing systems and autonomous systems. But technological development is faster than that of institutional mechanisms to manage its strategic consequences. South Asia has relatively few arms-control mechanisms and few durable regional institutions for controlling nuclear competition. India and Pakistan have also established some confidence-building mechanisms - such as those to control nuclear facilities and military communication - but they are much less than the arms-control structure that emerged between the United States and the Soviet Union in the Cold War. The level of formal mechanisms between India and China is even more limited in the nuclear sphere.

This institutional deficit represents a major weakness in the regional security architecture. Deterrence cannot depend indefinitely upon assumptions of perfectly rational decision-making, particularly in an environment characterised by territorial disputes, nationalism, rapidly changing technology and compressed crisis timelines. Strategic stability therefore requires mechanisms that supplement deterrence with communication and restraint.

A more sustainable South Asian security architecture would require stronger crisis-communication mechanisms, transparency regarding nuclear doctrines, confidence-building measures, risk-reduction arrangements and greater dialogue concerning emerging technologies. Such measures do not require states to abandon deterrence. Rather, they recognise that effective deterrence depends upon reducing the possibility that misperception, technological failure or ambiguous signalling transforms a manageable confrontation into uncontrolled escalation.

India consequently occupies a pivotal position within the evolving Asian nuclear order. Its strategic choices affect Pakistan's calculations while simultaneously responding to developments in China, whose own nuclear posture is increasingly influenced by wider great-power competition. India therefore operates at the intersection of regional and global nuclear dynamics. The future credibility of its deterrence will depend not simply upon the expansion of military capabilities but upon its ability to combine assured retaliation, technological resilience, doctrinal restraint and effective crisis management within an increasingly multipolar security environment.

CONCLUSION

Nuclear deterrence continues to occupy a paradoxical position in contemporary international security. More than eight decades after the advent of nuclear weapons, their destructive potential remains the principal reason for both their strategic significance and the extraordinary restraint surrounding their actual use. Yet the conditions under which deterrence operates have changed considerably. The relatively structured bipolar nuclear relationship that shaped much of classical deterrence theory has gradually given way to a more fragmented and interconnected strategic environment involving multiple nuclear powers, asymmetric capabilities, overlapping rivalries and rapidly evolving technologies. The central challenge is therefore no longer simply whether nuclear deterrence works, but whether the assumptions upon which traditional deterrence theory was constructed remain sufficient for maintaining stability in an increasingly multipolar nuclear order.

India provides an especially important case through which to examine this transformation. Unlike the predominantly bilateral nuclear relationship that characterised the Cold War, India operates within an asymmetric triangular deterrence environment involving China and Pakistan. Pakistan's nuclear calculations remain closely connected with India, while India must simultaneously consider Pakistan's nuclear posture and China's substantially greater strategic capabilities. China's own nuclear modernisation, meanwhile, increasingly intersects with its wider strategic competition with the United States. The result is an interconnected deterrence chain in which changes occurring within one strategic relationship can generate consequences across several others.

This paper has therefore argued that the China–India–Pakistan relationship cannot adequately be understood as two separate bilateral deterrence equations. The strategic triangle contains different levels of conventional capability, nuclear doctrine, technological sophistication and geopolitical ambition. India consequently faces a distinctive dilemma: it must preserve credible deterrence against Pakistan while simultaneously maintaining an assured retaliatory capability against a considerably more powerful China. Attempting to address one relationship can affect perceptions within the other, creating the possibility of cascading security dilemmas and competitive modernisation.

Emerging technologies intensify this problem. Artificial intelligence, cyber capabilities, autonomous systems, hypersonic weapons, precision-strike systems, missile defence and space-based infrastructure can strengthen surveillance, survivability, accuracy and military effectiveness. At the same time, these technologies can compress decision-making timelines, generate

uncertainty regarding an adversary's intentions, blur distinctions between conventional and nuclear operations and increase vulnerabilities within command-and-control systems. Technological sophistication therefore does not necessarily produce strategic stability. Under certain conditions, it may generate precisely the uncertainty that nuclear deterrence is intended to control.

This technological paradox has particular implications for India. The modernisation of delivery systems, the strengthening of sea-based deterrence, improved surveillance and communication, cyber resilience and greater integration among conventional and strategic capabilities can enhance the credibility of Indian deterrence. However, modernisation must remain connected to the underlying political purpose of deterrence: preventing war rather than acquiring capabilities for their own sake. An uncontrolled pursuit of technological or numerical superiority could generate countermeasures from both China and Pakistan and potentially undermine the logic of credible minimum deterrence.

India's future strategy should therefore be understood in terms of **integrated but restrained deterrence**. Conventional preparedness, credible nuclear retaliation, maritime capability, cyber resilience, space security, technological innovation and institutional coordination increasingly need to function as interconnected components of national security. Yet integration must be accompanied by political control, doctrinal clarity and escalation management. The objective should be to deny an adversary confidence in achieving rapid military objectives while preserving a survivable retaliatory capability against threats to India's vital interests.

The analysis also demonstrates the continuing importance of diplomacy and institutional mechanisms. Deterrence cannot permanently substitute for communication. This is particularly important in South Asia, where nuclear weapons coexist with unresolved territorial disputes, periodic military crises, cross-border tensions and comparatively weak regional arms-control arrangements. Confidence-building measures, reliable crisis communication, nuclear risk-reduction mechanisms and dialogue concerning emerging technologies can therefore complement rather than contradict credible deterrence. Strategic stability requires adversaries not only to possess destructive capabilities but also to understand, with reasonable accuracy, the thresholds, intentions and limitations associated with those capabilities.

For India, strategic autonomy should consequently remain closely connected with strategic responsibility. India's rise within an increasingly multipolar international order provides greater technological and military capabilities, but it also increases its responsibility to contribute to regional and global nuclear stability. Its longstanding commitment to credible minimum deterrence, restraint and eventual nuclear disarmament provides a normative framework within which technological modernisation can be situated. The challenge will be to ensure that the requirements of contemporary deterrence do not progressively erode the restraint that has historically distinguished India's declared nuclear posture.

More broadly, the Indian case reveals an important limitation of classical deterrence theory. Multipolar nuclear deterrence is not simply bipolar deterrence involving more actors. It is qualitatively more complex because strategic relationships overlap, technological developments travel across different deterrence dyads, and decisions taken against one adversary can alter the threat perceptions of another. The stability of such a system consequently depends upon more than mutual vulnerability. It requires survivable capabilities, credible signalling, technological resilience, escalation control and institutional mechanisms capable of managing uncertainty.

The future of nuclear deterrence will therefore be determined not merely by how many weapons states possess, but by how successfully they manage the increasingly complex interaction between capability, credibility, technology, perception and restraint. India stands at the centre of this transformation in Asia. Its ability to reconcile credible deterrence with strategic restraint, technological modernisation with crisis stability, and national security with institutionalised risk reduction will significantly influence the future trajectory of the South Asian nuclear order. In this sense, India's experience offers a wider theoretical lesson for the emerging multipolar world: the ultimate measure of an effective nuclear deterrent is not its capacity to fight a nuclear war, but its ability to ensure that such a war never becomes a rational, accidental or technologically induced choice.

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