

**Book Title: Pakistan's Pathway to the Bomb: Ambitions, Politics, and Rivalries**

**Author: Mansoor Ahmed**

**Publisher: Georgetown University Press, 2022, 304**

*Reviewed by Rabia Akhtar, Associate Professor, School of Integrated Social Sciences, University of Lahore.*

In their seminal books, Pakistani scholars Feroz Hassan Khan and Hassan Abbas have dissected sets of complex questions relating to Pakistan's nuclear program. Both Khan and Abbas have lucidly analyzed the factors that drove not only Pakistan's nuclearization but also the activities of Abdul Qadeer Khan (A.Q. Khan) and his network. As the titles of their works suggest, both shed light on how Pakistan, facing grave security challenges, braved many an odd to get a deterrent of its own. While Khan and Abbas have made significant contributions to the literature on Pakistan's nuclear excursion, they center their analyses on external factors and A.Q. Khan, and therefore leave a lot of room for unpacking various aspects of the said journey. This gap means that Pakistan's nuclear story remains incomplete and incoherent. Enriching the body of scholarship on Pakistan's nuclear history is essential for policymakers and scholars alike, not least because it will help them understand the *how* part of the proliferation question, which is one of the pressing ones that scholars deal with as far as the country's nuclear program is concerned. Certainly, there is a lot more to how states proliferate than what is available in the vast, impressive literature on the subject. Also, it will cast light on the degree of resolve of nuclear aspirants in navigating seemingly insurmountable hurdles in pursuit of nuclear weapons. Understanding the need for adding the missing parts in Pakistan's nuclear story, Pakistani scholar Mansoor Ahmed, in his new book *Pakistan's Pathway to the Bomb: Ambitions, Politics, and Rivalries*, adroitly uses a plethora of primary sources to bring new knowledge to the fore on Pakistan's process of nuclearization. Ahmed, benefitting from his collection of primary sources and a long discussion with his uncle who was one of the key architects of Pakistan's nuclear program, Munir Ahmad Khan, deconstructs the role of the intra-elite turf wars as a major determinant of the country's nuclear odyssey. In doing so, Ahmed dispels and challenges axioms that have been attached to Nuclear Pakistan.

Ahmed joins U.S. scholar Vipin Narang in rightly asserting that getting to know why states seek the bomb is not enough to understand how they do so. In the context of Pakistan, Ahmed argues that while security drivers do explain why Pakistan went nuclear, they do not help us describe the pathways it traversed to do the needful. Ahmed uses Graham Allison's bureaucratic-politics decision-making model and Peter Lavoy's nuclear mythmaking model, to delve into a web of domestic push and pull factors that shaped Pakistan's nuclear direction. Ahmed bringing in the perspective of individuals' and institutions' ambitions and biases to the

discussion certainly gives readers fresh insights into Pakistan's road to the bomb. Ahmed's research-laden work compellingly speaks to the impacts of rivalries and competitions within Pakistan's nuclear elites on the country's approach towards its nuclear program. Ahmed lays bare the pitfalls of the friction between various stalwarts, not least A.Q. Khan and Munir Khan, arguing that it produced sunk costs and duplications. Obviously, stacked against heavy odds, perpetual infighting was the last thing Pakistan would have wanted. However, such was the heft and influence of two nuclear mythmakers in Zulfikar Ali Bhutto and Munir Ahmad Khan that polarization within the nuclear establishment did not stop Pakistan from building nuclear weapons. Ahmed writes that "no other country succeeded in producing a bomb despite such a deeply divided and polarized program that epitomized rivalry, fierce competition, and turf wars within its nuclear elite."(p.4) While Ahmed brilliantly narrates the Pakistani equivalent of the Nehru-Bhabha partnership, it is important to not forget that nuclear mythmakers might not have gained traction absent a real threat from India. Therefore, it is important to add a context before talking about the influence of mythmakers. After all, mythmakers need something to play with, and, apropos of Pakistan, Bhutto and Khan had a litany of Indian aggression to build their case on.

Next, Ahmed, bringing his vast research experience into play, traces the ascendancy of A.Q. Khan and how his clout affected both Pakistan's nuclear program and narrative. As someone whose own book titled *The Blind Eye* is a product of extensive archival research, I can speak to the difficulty of corroborating and interpreting various documents to put together a coherent account. Hence, I think this is one of the strengths of the book, simply because there is a trove of archives researchers should parse and dig into. The author has used a good mix of primary and secondary sources to make his work a gripping read. Ahmed helps readers see the legendary A.Q. Khan through a new prism, one which strips him of the title 'Father of Pakistan's Nuclear Program'. Ahmed presents evidence which points to A.Q. Khan's proclivity towards self-aggrandizement and mustering as much operational freedom as possible. Further academic inquiries on the A.Q. Khan network could benefit from Ahmed's assessment of Khan's rise up the power ladder. Ahmed also details A.Q. Khan's image-building endeavors that made him into an almost untouchable holy cow in Pakistan. This side of A.Q. Khan's entire story should agitate the minds of scholars. This is primarily because it is important to correctly ascertain the prestige attached to nuclear weapons, or to those even remotely associated with their development. Besides, the way A.Q. Khan leveraged and played up his position suggests that there was a great deal of prestige attached to Pakistan's nuclear weapons. Therefore, new knowledge on A.Q. Khan and other individuals shines further light on what nuclear weapons meant to and for Pakistan.

In sum, it is reasonable to suggest that Ahmed's focus on untangling the politics within Pakistan's nuclear enterprise has added to the scholarly mix the hitherto understudied aspects of the country's biggest success story. Also, by reframing the context in which Pakistan went about developing nuclear weapons, Ahmed has birthed new questions for researchers to dabble in. One of the questions this book could engender is: How could consensus for going nuclear be reached in the absence of strong mythmakers, especially when security environments are utterly unfavorable? Ahmed's scintillating work develops an inexorable connection between mythmakers and security woes, and therefore uncoupling the two would make for an interesting research puzzle. Also, Ahmed's work has enriched scholarship on Pakistan's nuclear program, something which will provide useful clues to researchers and policymakers dabbling in issues pertaining to nonproliferation. One big lesson from this book for nuclear watchers is that individuals play a far greater role in shaping trajectories of nuclear states, and Pakistan is no exception.

**Book Title:** **The AI Wave in Defence Innovation: Assessing Military Artificial Intelligence Strategies, Capabilities and Trajectories**

**Editors:** **Eds Michael Raska, Richard A. Bitzinger**

**Publisher:** **London and New York, Routledge, 2023, 287**

**Reviewed by Rubia Shoukat, Research Officer, Center for International Strategic Studies Sindh (CISSS).**

Advancements in Artificial Intelligence (AI) and Machine Learning (ML) pose pressing questions related to evolution of military power, compliance with international humanitarian law, peace promotion, strategic stability, arms control and technology race. Edited by Michael Raska and Richard A. Bitzinger the book, *The AI Wave in Defence Innovation: Assessing Military Artificial Intelligence Strategies, Capabilities and Trajectories*, comprises introduction and ten chapters: (i) Artificial Intelligence in Warfare: Military Uses of AI and Their International Security Implications; (ii) AI and Technological Convergence: Catalysts for Abounding National Security Risks in the Post-COVID-19 World; (iii) AI Ethics and Governance in Defence Innovation: Implementing AI Ethics Framework; (iv) European Military AI: Why Regional Approaches Are Lagging Behind; (v) US Governance of Artificial Intelligence for National Security: Competitive Advantage from the Moral High Ground?; (vi) China's Evolving AI Development: Emergent Process Transcending Instrumentalism and Morality; (vii) Assessing Russia's National Strategy for AI Development; (viii) Military AI Developments in Russia; (ix) Comparing Military AI Strategic Perspective: Japan and South Korea; and (x) Australia's Approach to AI Governance in Security and Defence. The book assesses an international and interdisciplinary perspective on the adoption and governance of AI and ML in defence and military innovation by major and middle powers.

In the first chapter authors Jean-Marc Rickli and Federico Mantellassi introduced three schools of thought regarding the influence of AI on warfare: enthusiasts, deniers and pragmatics. These schools of thought do not differ in their recognition of the recent advances in the field of military AI, but in their view of the potential for these advances to be utilised in a military setting. In short, the debate centres on whether and to what extent AI will influence the character of war. Further, the chapter takes stock of the current and prospective uses of AI on the battlefield, showing that military AI is already a reality serving as an analytical enabler, disruptor and force multiplier. It argues that AI's current and potential future military applications and the commercial nature further increases the impact of AI on strategic stability, as it facilitates the proliferation of the technology, increasing the number of actors that have access to disruptive technologies.

Second chapter, written by Tate Nurkin focuses on the increasing necessity of AI and ML in defence and security domains. The book identifies five crucial categories where AI plays a transformative role.

Firstly, situational awareness which involves the use of AI Algorithms to process vast data for enhanced understanding. Secondly, hyper-enabled platforms and people, where AI augments human capabilities and enhances the performance of military systems. Thirdly, new efficiencies in “Design Age” which refer to the use of AI in cost reduction and accelerating innovation. Fourthly, connectivity and lethality, where AI facilitates Lethal Autonomous Weapon Systems (LAWS). Lastly, monitoring and manipulation of AI enabled surveillance and propaganda tools. The chapter underscores the importance of optimizing human-machine collaboration for stronger, faster and more resilient defence capabilities.

Third chapter authored by Cansu Canca discusses ethical considerations in AI decision making. The author presents PiE model, an AI and governance framework comprising three key components: (i) AI ethics; (ii) Process; and (iii) People. The chapter concludes by presenting some further considerations, such as accountability. AI ethics framework supported by regulations would function as an external enforcing mechanism to define the boundaries of legally acceptable actions and to establish a fair playing field for competition.

Fourth chapter authored by Simona R. Soare highlights the global revolution in military, driven by AI advancement. The author examines strategies and capabilities of major powers, focusing on the US, China and Europe. It emphasizes the strategic leveraging of collaborative European Union and NATO formats to enhance AI capabilities and promote technological sovereignty.

Fifth chapter by Zoe Stanley-Lockman discusses chronicles of the US security and defence policy on AI and ML. The author analyses the Department of Defence’s (DoD) role in governance and the influence of National Security Commission on AI in shaping comprehensive policies. After defining the stakes of the US government in AI in the current strategic context, answer is provided in three sections. First explains how DoD has cemented its leadership role in AI/ML governance. Second explains how the National Security Commission on Artificial Intelligence (NSCAI) is attempting to promote a more comprehensive AI policy. Third analyzes external relationships with the private sector, academia, and international actors to assess their influence on the US AI governance for national security.

Sixth chapter written by Qi Haotian addresses concerns about the potential impact of AI development on strategic and operational stability, with specific focus on China’s perspective. There are concerns that the development of AI in military affairs can harm the stability between major military powers like the United States and China. In all fields of AI utilisation, the following concerns address the current and future roles of AI: accountability, safety and security, reliability, explicability, adaptability, human control and responsibility. China sees the advances in AI as a way to enhance its national competitiveness and security in both

civilian and military domains. China also has the largest number of AI patents globally, slightly ahead of the US and Japan. The combined number of patent disclosures of these three countries amounts to 74% of the global total.

Seventh and eighth chapters authored by Vadim Kozyulin and Samuel Bendett discuss Russia's National Strategy on AI development and AI based defence and security. Russia plans to achieve this goal by supporting scientific research, developing software, increasing the availability and quality of data and hardware, supporting export of Russian products, training and attracting foreign specialists and private investment. These chapters acknowledge the evolving debate on military use of AI in Russia and its potential impact on defence and security and also highlight the need for Russia to address technological challenges while integrating AI into its military. As stated by Russian President Vladimir Putin, "Artificial intelligence is the future, not only for Russia, but for all humankind. It comes with colossal opportunities but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world." In 2020, Russian Ministry of Defence announced research on new generation of military systems with AI with a budget of USD 5 million. In the wake of Ukraine crisis, Russia's "technological sovereignty", a concept described as diminished dependence on imported Western technology and growing reliance on the domestic ability to produce key high-tech systems by industries of strategic importance, such as AI, has also evolved.

Ninth chapter contributed by Ryo Hinata-Yamaguchi compares developments in Japan and South Korea regarding military AI and its governance. The author explores the rationale and applications of AI in military. The chapter further looks at the ethical debate concerning AI-based systems and research and development (R&D). Several internal and external factors rationalise Japan and the South Korea's pursuit of the development and application of AI for defence. First is threat based defence planning, eyeing the developments in China, Russia and North Korea. Second is the universal recognition of AI as a vital technology. Third is the importance of AI and robotics for Japan and South Korea in relation to their demographic challenges. Fourth is the use of AI as an enabler and driver of their military applications. Fifth is the significance of AI-equipped systems for boosting arms exports and trade. Utilisation of AI for national defence is also present in South Korea's Defence Reform 2.0, which encourages the use of scientific and technological advancements of the Fourth Industrial Revolution to overcome resource constraints and adapt to future battlefields.

Tenth chapter authored by Kate Devitt and Damian Copeland begins with Australia's strategic position, definition of AI and identifying the Australian Defence Organisation's (ADO) priorities. It then moves into AI governance initiatives and specific efforts to develop frameworks for

ethical AI in both civilian and military contexts. The chapter emphasises the need for a coordinated approach, encompassing policy framework, investment in research and development and international partnerships to ensure the effective and responsible development of AI while mitigating potential risks. While Australia has not adopted an AI governance framework specifically for Defence, *A Method for Ethical AI in Defence (MEAID)* published by ADO includes a framework and pragmatic tools for managing ethical and legal risks relating to military applications of AI.

The book offers a comprehensive analysis of the impact of AI on defence and security policies of states. It explores various aspects of AI including its strategic impact, ethical considerations and governance frameworks. The book underscores the need for a responsible approach to AI development and its applications, including through international cooperation.

**Book Title: Original Sin: Power, Technology, and War in Outer Space**

**Author: Bleddyn E. Bowen**

**Publisher: Oxford University Press, February 1, 2023, 256**

***Reviewed by Mujeeb Jan Talpur, PhD Scholar and Lecturer Shah Abdul Latif University.***

In the contemporary era characterised by the emergence of space as a novel frontier for human exploration, the publication authored by Bleddyn E. Bowen, titled "Original Sin: Power, Technology, and War in Outer Space," stands out as a significant addition to the dialogue surrounding space supremacy, international relations, and technological progress in the realm of outer space. Bowen, an expert in the realm of space politics, adeptly delves into the complex terrain of space militarisation and its ensuing ramifications. This topic is comprehensively and enlighteningly analysed, facilitating readers' thorough knowledge.

Bowen's book commences with an assertion that the initial fascination with the universe, propelled by a pursuit for exploration and comprehension, has been marred by the repercussions of militarization. The following analysis explores the dynamics that arise when nations compete for dominance in space. The author thoroughly examines the historical, political, and technological factors associated with the militarization of space. Through an investigation, the author critically assesses the origins and evolution of space technology, emphasizing its transformation as a tool driven by the pursuit of supremacy. A shift in the domain has led to a highly competitive and unpredictable environment. Within this context, countries are increasingly deploying weaponry capable of targeting satellites, disrupting communication networks, and potentially damaging entire spacecraft.

Bowen highlights arguments such as power dynamics, technological advancements and the security dilemma. He emphasizes how power influences the utilization and militarization of space. Strategies nations employ to gain control over resources in space communication networks and military capabilities are analyzed. This could result in a struggle for power and the escalation of an arms race. The book thoroughly examines the progress made in space technology and its potential impact on military operations. The author examines the progress of space-based armaments, surveillance capacities, and the possibility of aggressive manoeuvres in space, emphasising the hazards linked to the militarization of this realm. Bowen presents the notion of the security dilemma, wherein defensive actions undertaken by a particular nation may be interpreted as aggressive by other nations. The individual asserts that this predicament has the potential to amplify distrust and raise the probability of conflict escalation. Consequently, they advocate for enhanced transparency and collaboration among nations.

Bowen guides readers on a journey, through the space race during the Cold War towards the ratification of the Outer Space Treaty in 1967. The author adeptly guides the reader through significant occurrences, showcasing the gradual shift from the aspiration of peaceful collaboration in space to the militarization of celestial entities. Through an examination of the historical progression of the militarization of space, the author illustrates the competitive endeavours undertaken by the United States and the Soviet Union during the 1960s and 1970s to advance their respective anti-satellite weapons (ASATs) and other space-based weaponry. Additionally, the author explores the increasing significance of space within contemporary military operations. This is exemplified by instances such as the employment of satellites to direct precision-guided munitions during the Gulf War in 1991, as well as the utilisation of space-based imagery to monitor and identify adversary forces in the ongoing conflict in Ukraine. According to Bowen, using military resources in space presents a significant risk to worldwide security. The individual highlights the potential for a space conflict to result in severe repercussions for Earth's civilian and military infrastructure. As an illustration, the compromise of a vital satellite can potentially interfere with various systems, such as communication, navigation, and financial networks, resulting in extensive disturbances to both the economy and society.

The historical basis is of great worth in comprehending the current state of space geopolitics. Nevertheless, although the historical context is adequately developed, there is room for a more comprehensive examination of the cultural and ideological elements that played a role in the transition from exploration to militarization. A comprehensive examination of the historical evolution of public attitudes towards space exploration would yield valuable insights into the changing landscape of space policy.

Bowen proceeds to discuss the present condition of space militarization. It is observed that the United States, Russia, China, and India are currently engaged in the development of novel space-based weaponry. The author also discusses the growing participation of private companies in the space industry and their ability to develop and commercialise space technologies with military applications. It is important to acknowledge that the deployment of military resources in the realm of outer space poses numerous risks. In the initial stages, it is conceivable that a competition for supremacy in space may be initiated, posing a possible threat to the stability of the global order. It is worth noting that there is a potential for heightened risk associated with conflicts in the realm of outer space, resulting in catastrophic outcomes. The prospect of militarising space will impede the utilisation of space for peaceful endeavours, such as scientific research.

The author posits that it is imperative for the global community to proactively intervene in order to mitigate the escalation of militarization

in outer space. He advocates for a novel global agreement prohibiting the advancement, experimentation, and utilisation of armaments beyond Earth's atmosphere. It would be advantageous if he could provide more specific recommendations regarding the actions that should be implemented to prevent the militarization of space. He could elaborate concerning precise recommendations for an international treaty designed to prohibit the utilisation of weapons in outer space. Most crucial would have been a thorough analysis of the participating private corporations in the militarization process. The increasing momentum of private companies engaging in the development and deployment of space-based weapons systems necessitates a comprehensive understanding.

His unwavering dedication to maintaining objectivity characterises Bowen's work. The book has been extensively researched, utilising diverse academic sources, policy papers, and historical instances. The investigation bolsters the reliability and comprehensiveness of the assertions put forth. He avoids explicitly endorsing or opposing the militarization of space, enabling readers to develop their own opinions on the presented information and analyses. Through an impartial viewpoint, he fosters the development of analytical reasoning and well-informed discussions within the academic community, decision-makers, and the general populace. While Bowen effectively maintains a sense of objectivity throughout the book, some readers might perceive the need for a definitive policy recommendation or framework as a missed chance. The book However, possible remedies and diplomatic approaches could be discussed to effectively navigate the complexities of space power dynamics, thereby increasing its practical applicability.

The accessibility of the book is another praiseworthy characteristic. Bowen effectively condenses intricate technical and geopolitical details into writing that is captivating and easily understandable. The author's narrative technique skilfully integrates historical anecdotes, technical explanations, and strategic insights, rendering the book a readily accessible reference for individuals with varying levels of expertise in the subject matter.

Overall, this book makes a significant scholarly contribution to the discussion surrounding space policy and geopolitics. Bowen's publication serves as a compelling appeal, urging individuals to address the intricate issues surrounding the militarization of space and to actively pursue resolutions that prioritise the preservation of our collective celestial environment for future cohorts. "Original Sin" is a highly commendable book that should be given significant recognition among scholars, policymakers, and individuals interested in understanding complex dynamics surrounding space power. This book stands out due to its thorough research, unbiased viewpoint, and captivating writing style, making it a valuable addition to any bookshelf.

**Book Title: The Security Imperative: Pakistan's Nuclear Deterrence and Diplomacy****Author: Zamir Akram****Publisher: Paramount, 2022, 457*****Reviewed by Safia Malik is Research Officer at Center for International Strategic Studies Sindh (CISSS).***

Pakistan has been facing security threats from India since independence. Zamir Akram's book focuses on Pakistan's nuclear deterrence and diplomatic efforts to deal with various security imperatives. The author has mentioned in the introduction that the book is largely based on his personal experience spanning over 38 years in the Pakistan Foreign Service, during which he served as Pakistan's Permanent Representative to the UN and other International Organizations in Geneva, Pakistan's Ambassador to Soviet Union, India, and the United States. The book is divided into fourteen chapters covering Pakistan's foreign policy including nuclear diplomacy from 1947 to 2020.

Author underlines Pakistan's security imperatives since 1947. He emphasized that Pakistan's geographical location, India's deep-rooted enmity with Pakistan and Indian aspiration for regional hegemony are the real causes of tension. India has outstanding disputes with all of its neighbours. It has used its size and military muscles to annex Sikkim, balkanise Bhutan, dominate Nepal and repeatedly interfere in the internal affairs of Sri Lanka, Maldives and Bangladesh. Even with more powerful China, New Delhi has laid claim to colonial-era borders which led to the Sino-Indian war of 1962 and continuing territorial disputes that perpetrated border clashes in 2020.

There is an emphasis on the Indian role in the dismemberment of East Pakistan in 1971 set the path for Pakistan to acquire nuclear weapons. At the Multan Conference (1972), Prime Minister Zulfikar Ali Bhutto decided that nuclear capability was essential for national survival. India tested its first nuclear device in May 1974 and called it a "Peaceful Nuclear Explosion (PNE)." The lukewarm international reaction to Indian nuclear explosion was deeply disappointing for Pakistan. In October 1974, the US Secretary of State Henry Kissinger during his visit to India reaffirmed that the US would continue to supply nuclear fuel to India's two General Electric Tarapur reactors, despite the Indian detonation using the US-supplied heavy water in the CIRUS reactors to produce the fuel for its nuclear bomb. French Atomic Energy Commission sent congratulations to its Indian counterparts.

The author traces Pakistan's journey of peaceful uses of nuclear technology and the role of PAEC. Three scientists played a crucial role in establishing nuclear research institutions and training manpower: (i) Dr Rafi Chaudhary, (ii) Dr Abdus Salam and (iii) Dr Nazir Ahmed who was the first Chairman of PAEC. PAEC established 5MW nuclear research reactor namely PARR-I at PINSTECH for research and development. The

discriminatory approach of Canada against Pakistan as it conditioned KANUPP (Karachi Nuclear Power Plant), funded by Canada, to be placed under the IAEA's safeguards, unlike India whose Canada supplied nuclear reactor **CANDU (Canada Deuterium Uranium)** was not required to be under such full-scope safeguards. India's acquisition of nuclear weapons under the umbrella of peaceful uses of nuclear technology was exposed by Munir Ahmed Khan, then serving at IAEA Headquarters in Vienna. He informed then Foreign Minister Bhutto and then President Ayub Khan that during his visit to India's CIRUS facility in 1964, he had seen himself that India was well on its way to making the bomb.

At the diplomatic level, Pakistan initiated a number of nuclear-related proposals in 1974 in United Nations and then in the Conference on Disarmament (CD): (i) Pakistan proposed the creation of a Nuclear-Weapon-Free Zone in South Asia, a zone in Latin America and the Caribbean region in line with Treaty of Tlatelolco which prohibits the deployment of nuclear weapons in the territory of member states. The proposal received an overwhelming response from non-nuclear weapon states during UN meeting held in New York and Geneva. India opposed the proposal. Pakistan withdrew this resolution after conducting nuclear tests in May 1998 in response to Indian nuclear tests; (ii) Resolution on Negative Security Assurances which called upon all nuclear weapon states to extend security assurances that they would not use or threaten to use nuclear weapons against non-nuclear weapon states. The resolution was supported by the majority of UN member states and members of CD including India. However, the French voted against it and the other nuclear weapon states, with the exception of China, voiced their reservation. This resolution continues to be sponsored by Pakistan; and (iii) Pakistan joined Sri Lanka's initiative to declare Indian Ocean as a Zone of Peace. Despite highlighting Pakistan's concerns, these proposals were not successful. The author has emphasized that Pakistan had no choice but to develop its own programme. However, despite the CIA assessment that the KANUPP reactor had accumulated 200kg of reactor-grade plutonium by mid-1980s, which was enough nuclear material for 30-40 bombs, Pakistan decided to use its indigenously developed facilities for its nuclear weapons programme.

The US imposed sanctions on Pakistan through the Pressler Amendment. Pakistan took various diplomatic steps to deflect pressure on its strategic programme, which included: (i) Conclusion of a bilateral agreement with India in 1992 to not to acquire, develop, deploy or use chemical weapons. However, India was forced to acknowledge its secret possession of chemical weapons while becoming a party to the Chemical Weapons Convention, which proved that India had lied about the non-possession of chemical weapons when it signed the bilateral agreement with Pakistan five months ago; (ii) Creation of a Zero-Missile Zone in South Asia in 1993. This proposal was rejected by India; and (iii) Convening of a

Multilateral Conference on Security, Arms Control and Non-Proliferation in South Asia in 1996. This proposal was rejected by India. The author has pointed out that globally Pakistan played a crucial role in the negotiation of the Chemical Weapon Convention at CD in 1993 leading to the Organization for Prohibition of Chemical Weapons (OPCW). Pakistan also participated in the conclusion of the Comprehensive Test Ban Treaty (CTBT) in 1996 as part of the non-proliferation regime.

The author has highlighted Pakistan's position on CTBT and FMCT. Pakistan conveyed that unlike India it had voted in favour of the Treaty in the UN and supported it in CD. However, in view of its security concerns, Pakistan stated that it would sign the CTBT if India did so. On FMCT, Pakistan could agree to negotiations in CD provided the issue of asymmetry of fissile material stockpiles between India and Pakistan. In 1998 when India conducted its Pokhran II nuclear tests, Pakistan had to test its own nuclear weapons. On 28 May 1998, Pakistan conducted its five nuclear tests and one nuclear test on 30 May 1998 in response to the 1974 Indian nuclear test. Despite the nuclear tests, Pakistan continued its nuclear diplomacy. After the nuclear tests in 1998, Pakistan proposed Strategic Restraint Regime to India that included: (i) Nuclear and missile restraint; (ii) Conventional balance; and (iii) Resolution of all disputes between India and Pakistan. The proposal did not materialize owing to Indian objections. However, it remains on table to date. To counter Indian war-fighting doctrines, the author has underscored that Pakistan has developed Full Spectrum Deterrence (FSD) to lower the nuclear threshold and ensure deterrence across the entire spectrum of threats. All these factors required that Pakistan's nuclear doctrine would need to be flexible and dynamic to maintain credible nuclear deterrence and strategic stability in the future. Pakistan established a robust command and control system under the Strategic Plans Division (SPD) as the secretariat of the National Command Authority (NCA).

The author has dedicated a chapter to Pakistan's connectivity and development. (i) Pakistan's geographical location can be turned into an opportunity rather than a challenge; (ii) CPEC can expand and upgrade the country's infrastructure and enhance energy production; and (iii) China-Pakistan partnership will not only boost the economic growth of the country but also provide access to the latest generation of civil and military technologies.

