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The South Asian Nuclear Posture:
A Vicious Nuclear Arms Race

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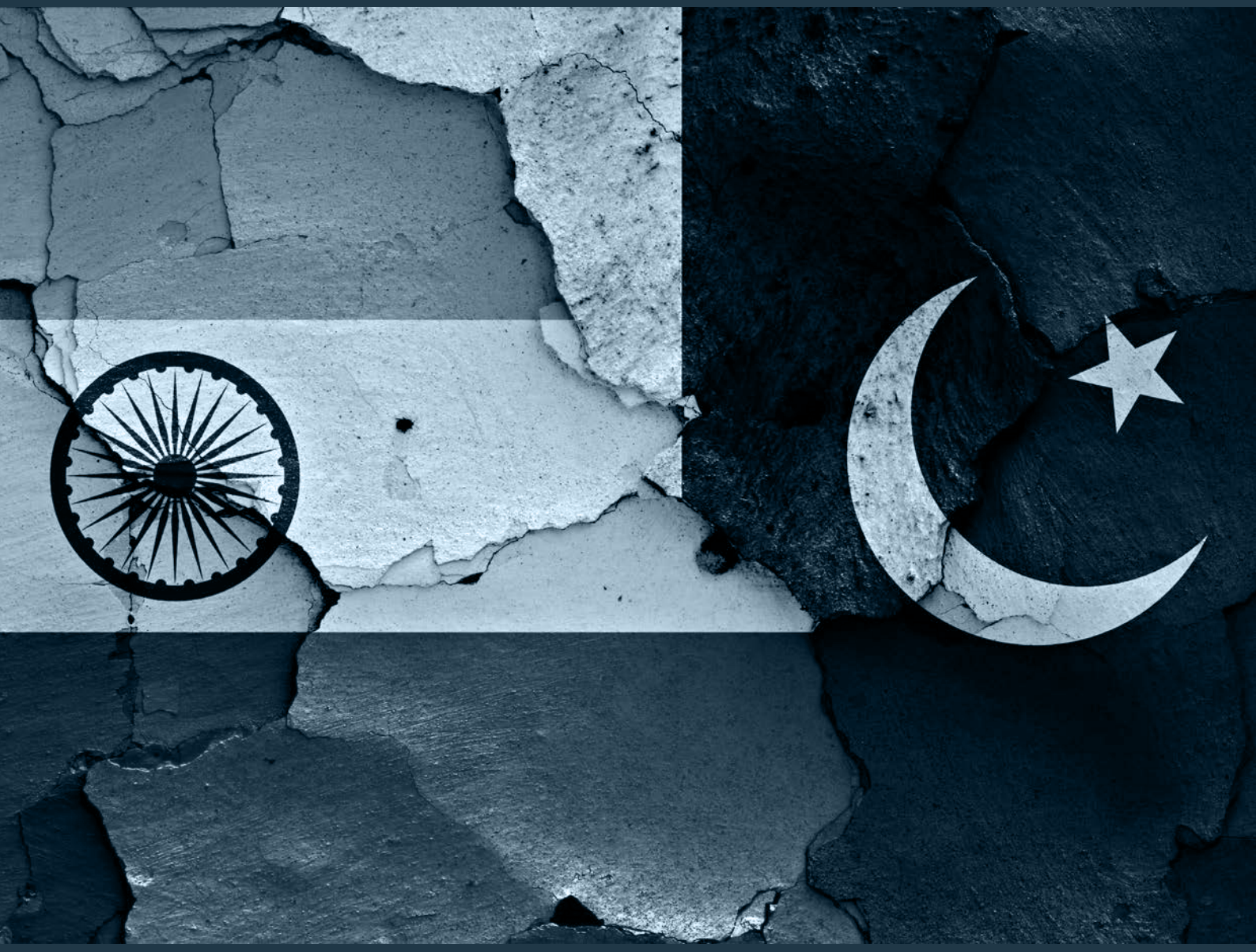

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Key Points

- The current evolution of military doctrines and technological choices by India, Pakistan and China in favour of the full triad of nuclear capacities contribute to lowering the threshold of an all-out nuclear war.
- This is all the more worrying in a context characterised by protracted conflict, bilateral and regional tensions, as well as lack of communication, transparency and long-term strategic vision.
- Due to the global and regional consequences of such a dangerous trend, this paper recommends urgent measures to prevent escalation or mitigate this threat.
- These measures include more transparency in nuclear doctrines, more focus on non-use of nuclear weapons, greater mutual communication, and a long-term outlook.

The authors

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Introduction

The year 2018 marks the 20th anniversary of the last nuclear tests conducted by India and Pakistan. Since 1998, both nation states have pursued their nuclear ambitions via the use of new ballistic missiles, cruise missiles and sea-based nuclear delivery systems. Events in the last five years have put emphasis on nuclear weapons technology, research and development, as well as production and testing. This evolution has taken place in a context of deteriorating bilateral and regional relations: the tense situation across the line of control (LoC); China's support for Pakistan's missile programme; the one-month stand-off between Indian and Chinese military forces; India's test of the Agni-V ICBM; Pakistan's testing of the nuclear capable Ababeel missile with a multiple warhead (MIRV) payload; and India's surgical strike response to attacks attributed to Pakistani terrorists. These developments underscore the growing nuclear complexity in South Asia, the increasing investments in nuclear capabilities, and a dangerous nuclear arms race in the region. This paper aims to analyse the current nuclear posture in South Asia and provide policy recommendations for reducing the tensions and lowering the risk of regional nuclear war by publicly clarifying nuclear doctrines, strengthening a non-use policy, including for tactical weapons, promoting mutual communication and a providing a long-term strategic outlook.

India and Pakistan possess simple warhead designs with low (0.1 kiloton to 50 kilotons) to medium yields of a few tens of kilotons (100 kiloton and multiple of 10).[1] However, China and India are now systematically transitioning to triad capability, i.e. the ability to launch nuclear weapons from air, land and sea. China, India and Pakistan all possess short- (75-100 km) to medium-range (250 to 1,500 km) nuclear missile strike capability. Only China has deployable long-range and inter-continental (>5000 km) nuclear strike capability,[2] with India and Pakistan quickly developing the capability of testing many long and inter-continental missile systems. India's successful testing of cruise missiles and sub-sonic missiles has also brought New Delhi closer to tactical nuclear weapons (TNW) (<100 km) capability (see Annex).

I. The Nuclear Framework of South Asia and China: Doctrines and Strategy

India and Pakistan have fought four wars since 1947, and India lost the war with China in 1962. The year 2017 was the most painful for the Indian armed forces, having lost 106 personnel in combat,[3] with regular exchange of fire across the border and a high number of casualties due to terrorist attacks. This portrays South Asia to be a region with a volatile security situation.

From 2016, there has been a gradual deterioration in India-Pakistan diplomatic relations. The media on both sides have occasionally crossed ethical and professional boundaries, amplifying aggressive narratives that have intensified the crises, thereby increasing the pressure on leadership of both countries.[4] Thus, it is critical to analyse the current nuclear posture between South Asia and China.

Country	Deployed Warheads *	Other War-heads **	Total 2018
China		280	280
India		130 – 140	130 – 140
Pakistan		140 – 150	140 – 150

Table 1: The current status of nuclear weapons in South Asia and China
World Nuclear Forces, January 2018, Source: SIPRI Yearbook 2018.
All estimates are approximate.
** 'Deployed warheads' refers to warheads placed on missiles or located on bases with operational forces.*
*** 'Other warheads' refers to stored or reserve warheads and retired warheads awaiting dismantlement.*

India:

India's nuclear doctrine, which was made public in 2003,[5] is based on three main tenets – no-first-use (NFU), massive retaliation, and force posture of credible minimum deterrence. Since 2016, India has been party to three major non-proliferation regimes: in June 2016 the Missile Technology Control Regime (MTCR), aimed at curbing missile proliferation; in December 2017 the Wassenaar Arrangement that coordinates export control of dual-use goods and technology; and in January 2018 the Australia Group that controls the transfer of toxic chemicals and dangerous pathogens. The Nuclear Suppliers Group (NSG), which deals with nuclear non-proliferation, has remained problematic because of China's continual objection to India's membership. India has bolstered its credibility by putting NFU as part of its nuclear doctrine. In addition, India has never considered nuclear weapons to be a military solution; it refers to nuclear weapons as a means of political deterrence. According to Dr Manpreet Sethi, an Indian expert on nuclear security, "India's development and advancements in nuclear weapons are in line with India's declared nuclear doctrine and do not present any changes to the doctrine's baselines. So the development of a triad or the investment in research and development in India's nuclear technology is in line with India's declared and assured nuclear doctrinal commitments."[6] India has also declared the 'Cold Start Doctrine', which is intended to allow Indian conventional forces to perform holding attacks or limited retaliatory strikes without crossing Pakistan's nuclear threshold to prevent nuclear retaliation in case of a conflict, and is designed to reorient India's military forces towards a more aggressive, offensive capability.[7]

Pakistan:

Since testing its nuclear devices in 1998 in response to India's tests, Pakistan has not formally declared an official nuclear use doctrine. The literature analysing the official statements, interviews and news reports asserts that the derivation of 'first use' and a unilateral moratorium against nuclear testing remain consistent. Pakistan's minimum credible deterrence with the evolution of the 'Shaheen III' and 'Nasr' tactical missiles has raised questions about references to the status quo, since such developments clearly imply an early use of nuclear weapons. Finally, the phrases 'full spectrum', 'non-mention of escalation control' and 'war termination' drive Pakistan's continuous development of its nuclear arsenal. In a sense, the premise of Pakistan's nuclear programme is specific against threats, and perceived threats, from India. In the words of Pakistan's Brig Gen (Ret) Tughral Yamin, "Pakistani arsenal is meant to provide what is officially described as full spectrum deterrence. Tactical nuclear weapons are meant to deter any shallow Indian thrust at the lowest level of engagement, within the framework of the so-called Cold Start Doctrine / Pro-Active Operations. A second strike capability is being developed by equipping the conventional submarines with nuclear-tipped ballistic missiles. Cruise missiles are being developed to beat the Indian [ballistic missile defences (BMDs)]".[8]

China:

Since its first nuclear test in 1964, China has been consistent in maintaining a nuclear policy of 'no first use' and maintenance of a limited number of nuclear weapons and an effective arsenal in a strategy known as 'lean and effective' deterrent capability, thus maintaining a second-strike capability. China also reiterates the policy of nuclear employment for self-defence and retaliation. China has not published a nuclear military doctrine but has biannually published a white paper on its national defence since 1998 (the year of Indian and Pakistani nuclear tests). These documents include basic descriptions on nuclear policy and the modernisation of Chinese nuclear forces. In December 2015 the elevation of the Second Artillery Corps, which controls the strategic and tactical missiles of China, to a full military service and its renaming as 'People's Liberation Army Rocket Force' was a major step in reconfiguring China's new nuclear policy motivation. This was echoed in the words of Xi Jingping, "the Rocket Force is our country's core strategic deterrent force; it is the strategic support for our country's major power status; and it is an important foundation for safeguarding our nation's security."[9] China is the only permanent member of the UN Security Council that is currently increasing the size of its strategic nuclear arsenal. Thus, China seeks to maintain a degree of nuclear superiority in South Asia and particularly over India. The development and deployment of eight credible ballistic missile submarines (SSBNs) of the Jin-class Type 094 by 2020 and the launch of the indigenous aircraft carrier are China's most significant advances. The opening section of the 2015 Defence White Paper has highlighted the main responsibilities of China's armed forces, "to maintain strategic deterrence and carry out nuclear counterattack."[10]

Command and Control

The ability to authorise a nuclear strike rests solely within China's highest military decision-making body

Pakistan: Islamabad's current Strategic Command Organisation for Pakistani Atomic Weapons relies on a threefold structure consisting of the National Command Authority (NCA), the Strategic Plans Division (SPD), and the Strategic Forces Command (SFC), reporting to the General Headquarters. The NCA and the SPD have joint operational control over Pakistan's nuclear arsenal. The SFC has only day-to-day 'administrative control' and provides technical support for those weapon systems.

India: Indian nuclear weapons are kept under tight political control. The Nuclear Command Authority (NCA) is the main organisation determining all priorities for budgets, resources, strategy, policy and operational command. The NCA consists of a Political Council and an Executive Council. The Political Council is chaired by the Prime Minister and is the only body in India capable of authorising weapons release to operational commands. The Executive Council provides advice and implements decisions taken by the Political Council. The commands of the NCA are executed by the Indian SFC, a tri-service military command with HQ Strategic Forces Command chaired by a commander-in-chief of three-star rank. Emergency command in the event of NCA decapitation is unknown, and other arrangements are not declared policy.[11]

China: The ability to authorise a nuclear strike rests solely within China's highest military decision-making body, the eleven-member Central Military Commission (CMC) of the People's Republic of China, controlled by the CMC of the Communist Party of China, both chaired by the General Secretary of the Communist Party and President of China. The members of the CMC are designated by the Central Committee of the Communist Party. Ultimately, the decision to wage war lies with the Communist Party Politburo. The Ministry of Defence does not have command authority. The emergent and completion of Jin-class SSBNs and the formation of the Rocket Force coincides with the changes in the Chinese command-and-control structure introduced in 2015. Since 2016, the traditional five organs of the CMC have been replaced with 15 functional sections. The new Joint Staff Department is in charge of military operation planning, command and control, studying and formulating military strategies, and assessing operational capacity, among others functions.[12]

II. Recent Developments Determining the Nuclear Posture of South Asia

A multitude of conflicting national interests, growing investments in second-strike or tactical nuclear capabilities, new technologies such as cruise and hypersonic missiles and the decision of each nuclear power to equip itself with full triad forces (land-based, airborne, and submarine), combined with the rise of tensions and mutual distrust, make the threat of a nuclear war realistic in South Asia. For example, in March 2018, China publicly confirmed via the Chinese Academy of Sciences (CAS) Institute of Optics and Electronics the sale of a "highly sophisticated large-scale optical tracking and measurement system" to Pakistan.[13] Optical systems play a critical role in missile testing and development. Pakistan's military has defined the roles and requirements for nuclear weapons in Pakistan's national security policy. Thus, most officials and experts in Pakistan view nuclear weapons largely in terms of military capabilities and potential use in warfare, further lowering the threshold of nuclear war instead of applying only a policy of deterrence. Pakistan has also shown urgency of development of nuclear weapons vis-à-vis the military modernisation of Indian armed forces and India's ballistic missile defence (BMD) programme. Table 2 below lists down the important nuclear-capable systems of the three nation states.

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III. Russia and the United States: Interested External Nuclear Actors in South Asia

India cleared the buying of the Russian Air-Defence S-400 missile system (five regiments) on 1 October 2018, ahead of the Prime Minister's visit to Russia on 5 October 2018.

United States: In August 2017, US President Trump gave a speech to outline his South-Asian policy. He stated,"[f]or its part, Pakistan often gives safe haven to agents of chaos, violence, and terror. The threat is worse because Pakistan and India are two nuclear-armed states whose tense relations threaten to spiral into conflict. And that could happen."[14] This highlights the concern felt by the United States about Indo-Pakistan relations and their possession of nuclear weapons. The US administration peruses opposing policy objectives in India and Pakistan. India is perceived with the lens of economic development and seen as an ally in rebuilding Afghanistan, while Pakistan is perceived differently. The United States is intent to crack down on terror outfits in Pakistan, such as the Afghan Taliban and the Haqqani Network, a Sunni Islamist group and offshoot of the Taliban, operating in the southeast of Afghanistan and the northwest of Pakistan against NATO forces. In early 2018, President Trump suspended $2bn in security assistance aid to Pakistan alleging that Islamabad was not actively cracking down on terrorist groups.[15] Moreover, the United States is worried about the strategic rise of China in South Asia and the Indian Ocean Region (IOR). China's strategic investments in the IOR via the construction and operationalisation of naval bases in Gwadar in Pakistan and in Djibouti, and the planned increase in the number of SSBNs in the next decade remain a matter of grave concern for the United States.

Russia: Russia remains India's primary defence supplier (despite increasing US sales).[16] India's nuclear submarine programme is a result of Russia's leasing of the 'Arihant' SSBN for ten years. Due to its long-term legacy contracts, Russia has managed to remain India's only supplier of strategic weapon systems, including aircraft carriers, nuclear-powered submarines, advanced combat jets, main battle tanks and cruise missiles. Russia and India are jointly developing the BrahMos-II hypersonic cruise missile (of an estimated range of 450 km and speed of Mach 7).[17] India cleared the buying of the Russian Air-Defence S-400 missile system (five regiments) on 1 October 2018, ahead of the Prime Minister's visit to Russia on 5 October 2018.[18] Russia and India are also collaborating on building ten nuclear reactors for civilian use in India and on the first nuclear power plant in Bangladesh. Russia has been diversifying its interest in South Asia with its sale of Mi-35M combat helicopters to Pakistan and two joint tactical exercises with Pakistani Special Forces. These bilateral engagements with the two rivals do not present any focused regional strategy in South Asia, and hints at Russia deriving conditional economic benefits from all. This is evident as Russia has also sold the S-400 missile system to China in the past, and conducts military exercises and wargames with all three states– India, China and Pakistan.

India's New Age Nuclear Capable Systems

Names	System	Variants	Type	Range (Km)	Nuclear Payload
Prithvi	Missile	(I - II - III)	Surface to Surface	500 - 1000	YES
Agni	Missile	(I to VI)	Surface to Surface (ICBM variant as well)	2000 - 8000	YES
K - 15 Sagarika	Missile		Submarine Launched Cruise Missile	750	YES - Integrated with Nuclear Submarine
K Series	Missile	(4 & 5)	Submarine Launched Ballistic Missile	3500	YES
Shaurya	Missile		Hypersonic Surface to Surface	750 - 1900	YES
BrahMos	Missile	(I - II - III)	Supersonic (land, air and submarine)	290	YES
Arihant	Submarine		Nuclear Powered Russian made		YES

**https://www.tandfonline.com/doi/figure/10.1080/00963402.2016.1194054?scroll=top&needAccess=true*

China's New Nuclear Capable Systems

Names	System	Variants	Type	Range (Km)	Nuclear Payload
DF	Missile	5B - 15 - 26 - 31A - 41	Land based ballistic missile (ICBM)	1000 - 11000+	YES
JL-2	Missile		Submarine launched ballistic missile (ICBM)	1000 - 7000+	YES
DH 10-10A / CJ 10	Missile		Cruise Missiles	1500 - 2000+	YES
YJ	Missile	100 - 12 - 18	Supersonic antiship missile		
CH-AS-X-13	Missile		Air Launched Ballistic Missile	3000+	YES
Type - 092 / 094	Submarine		Nuclear Powered		
H6X1/H-6N	Bomber			6000+	YES

**https://www.tandfonline.com/doi/figure/10.1080/00963402.2016.1194054?scroll=top&needAccess=true*

Pakistan's New Nuclear Capable Systems

Names	System	Variants	Type	Range (Km)	Nuclear Payload
Ababeel	Missile		Medium Range Ballistic Missile	2,200	YES
Hatf	Missile	7 and 8	Cruise Missile	350 - 700	YES
Hatf	Missile	5 and 6	Medium Range Ballistic Missile	1250 - 2000	YES
Hatf	Missile	3 and 4	Short Range Balistic Missile	290 - 750	YES
Hatf 9 'Nasr'	Missile		SRBM	90	YES

**Missile Defense Project, "Missiles of Pakistan," Missile Threat, Center for Strategic and International Studies, published June 14, 2018, last modified June 15, 2018, https://missilethreat.csis.org/country/pakistan/.*

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IV. Analytical Snapshot

A potentially lethal act of terrorism has the potential to escalate from a conventional military option to a limited nuclear conflict between India and Pakistan.

India and Pakistan currently face complex challenges with regard to their nuclear capability. The assessment of South Asia's nuclear future is speculative, simply because of the lack of security in the storage of nuclear source material, opaque knowledge of intentions, an increasing number of warheads, and many other unknown variables consistently at play. In addition, technological developments, continued production of fissile material, focus on miniaturisation of nuclear warheads and investment in new military hardware pose new challenges for the South Asian nuclear posture. These developments all point towards a more nuclear South Asia in the future – improved warheads, agile delivery vehicles and the triad capabilities becoming operational – thus increasing the risk of nuclear confrontation, in particular due to misperceptions.

China's reconfiguration and command-and-control structure of the armed forces under one umbrella, its close ties and support to Pakistan's missile programme, its military outposts in the Indian Ocean Region (IOR) and its build-up of advanced nuclear naval capabilities complicate the already challenging nuclear posture of South Asia. In addition, the role of terrorism in the region has not subsided and India's retaliation beyond its borders via surgical strikes has shown its willingness and capability of power projection. Thus, a potentially lethal act of terrorism has the potential to escalate from a conventional military option to a limited nuclear conflict between India and Pakistan.

With the increase of military tensions across borders, the rise of nationalism, governments' silence or opacity over their respective nuclear policies and doctrines, South Asia presents a more apprehensive than positive outlook with regards to its nuclear future. The testing of new weapons such as the 'Abadeel' missile, Pakistan's first surface-to-surface medium-range ballistic missile, reportedly capable of carrying multiple independently targetable re-entry vehicles (MIRVs), India's test of the Agni-V long-range intercontinental ballistic missile (ICBM), and the Chinese SSBN Jin-class Type-094A increase the odds of a full-blown nuclear arms race in the region.

V. Recommendations

Until India, Pakistan and China can ensure the survivability of their triad operations and a fully operational command-and-control structure, they should avoid emphasising the possible use of nuclear weapons in combat operations.

It is evident that the South Asia/China nuclear paradigm is complex. There is evidence that a nuclear arms race is occurring as each state develops its nuclear weapons arsenal quantitatively and qualitatively as a normal response to regional tensions, which is characteristic of a zero-sum game instead of a conflict-resolution or cooperative approach. In addition, the active resort to nuclear-related literature exacerbates tensions in an already complicated region, resulting in an increased likelihood of war. This is why this paper makes the following recommendations:

1) South Asia and China should clearly and publically define and lay out their nuclear ambitions and objectives. As one Indian analyst argued, “remember nuclear has never been easy and we should not mess-up the issue by using complex English literature terminologies”.[19] Placing the nuclear doctrines in the public domain and reiterating and reasserting clear and simple objectives is the first step in keeping South-Asia safe. Transparency is indeed one of the basic confidence-building measures.

2) Until India, Pakistan and China can ensure the survivability of their triad operations and a fully operational command-and-control structure, they should avoid emphasising the possible use of nuclear weapons in combat operations, including early resort to ‘tactical’ weapons, which may only lead to escalation. The failure of command-and-control due to a false alarm or human error is the most compelling danger, and highlights the possibility of inadvertent use of nuclear weapons in South Asia. This is important because if deterrence fails and there is no escalation control, it is irrelevant whether a TNW or a 500-kiloton bomb is fired as an all-out nuclear war in South Asia would become unavoidable.

3) As the notion of 'strategic autonomy' is prevalent in South Asia, due to a need to maintain an independent foreign policy, none of the nuclear states would consider giving up their nuclear ambitions in the short or medium term. Thus, a need for deeper and long-term thinking in establishing a ‘communication block’ is required, not necessarily militarily but where exchange of nuclear dialogue can take place in a professional and rational environment. The necessity of effective communication channels and mutual confidence and transparency building measures to avoid misperceptions has never been more acute.

4) A new generational nuclear outlook is required in South Asia to instigate a win-win scenario based on strategic stability rather than a doomsday scenario and over-articulation of threats. There is a need for new political will, new-age strategists, think-tank scholars and academics to look to the future, take lessons from the past and from other regions, uphold the challenges of the present and provide an optimistic solution defining a stable South Asian nuclear posture, creating the conditions for a mutually beneficial process of balanced force and risk reduction.

South Asia and China Nuclear Capabilities

Nuclear Weapon Type	China	India	Pakistan
Bomber	YES	NO	NO
Inter-continental Ballistic Missile (ICBM)	YES	*Under Test	NO
Sea-Launched Ballistic Missile (SLBM)	YES	*Under Dev.	NO
Dual-Capable Aircraft (DCA)	YES	YES	YES
Intermediate-Range Ballistic Missile (IRBM)	YES	YES	YES
Medium-Range Ballistic Missile (MRBM)	YES	YES	YES
Short-Range Ballistic Missile (SRBM)	YES	YES	YES
Air-Launched Cruise Missile (ALCM)	YES	YES	YES
Sea-Launched Cruise Missile (SLCM)		*Under Dev.	YES
Ground-Launched Cruise Missile (GLCM)	YES	YES	YES
Multiple Independently Targeted Re-Entry Vehicle (MIRV)	YES	*Under Dev.	YES
Solid Fuelled Tactical Ballistic Missile	YES	*Under Dev.	*YES

*Sources: Hans M. Kristensen, Matthew G. McKinzie, "Nuclear Arsenals: Current developments, trends and capabilities", International Review of the Red Cross, 2015, https://www.icrc.org/en/download/file/24537/irc97_6.pdf, Table 2, p. 570. Additional links provided by the authors with an updated account of nuclear weapons development in South Asia for tabs marked with *:*

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