

# NUCLEAR ORDER IN THE TWENTY-FIRST CENTURY

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Edited by Rakesh Sood



# **Nuclear Order in the Twenty-First Century**

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# Foreword

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“Now I am become Death, the destroyer of worlds.” Dr. Robert Oppenheimer once admitted that these words from the *Bhagvad Gita* came to his mind as he witnessed the world’s first detonation of a nuclear device on 16 July 1945. Less than a month after the event, nuclear weapons were used twice, bringing death and destruction to the cities of Hiroshima and Nagasaki. Since then, nuclear weapons have occupied a hallowed space in national security doctrines and conversations on international security. Perhaps due to their destructive potential, nuclear weapons have never been used since the Second World War. This taboo has survived for over seven decades. The question is – can it hold in the 21<sup>st</sup> century?

The current nuclear order was born amidst the rivalry of the Cold War. In this bipolar world, the US and USSR accumulated over 60,000 nuclear bombs. Nuclear deterrence theories were refined to rationalise their arms race and justify how nuclear stability would keep the world safe. The Cuban Missile Crisis of 1962 and the threat of nuclear proliferation, however, created an urgent impetus to find new political solutions to guard against annihilation. Bilateral arms control agreements helped reduce the global nuclear stockpiles by more than three-fourths. The Nuclear Non-Proliferation Treaty (NPT), which was extended into perpetuity in 1995, enjoys the widest adherence among all multilateral arms control agreements, with only India, Israel, North Korea and Pakistan outside its fold. However, reassuring as this may sound, there is a growing concern today that past measures may prove insufficient.

Like many other arrangements, 20<sup>th</sup>-century solutions for nuclear stability are failing. Some of the bilateral nuclear arms control agreements between the US and the USSR are already dead. In 2002, the US unilaterally withdrew from the 1972 ABM Treaty, creating a new impetus to develop missile defence capabilities. In October 2018,

President Donald Trump declared that the US is withdrawing from the 1987 INF Treaty, which prohibited both countries from deploying missiles with ranges between 500 and 5,500 kilometres. The New START agreement, which limited the stockpiles and launch platforms that both countries could deploy, is due to lapse in 2021. Neither state is likely to renegotiate. These developments imply that for the first time in half a century, American and Russian strategic nuclear arsenals will not be subject to any bilaterally negotiated constraints.

While the US and Russia continue to account for the largest stockpile of nuclear weapons, the fact remains that their bilateral relationship is no longer central to global strategic stability. The onset of a multipolar world in the 21<sup>st</sup> century has seen new actors enter the fray. North Korea, an isolated authoritarian regime, now possesses missiles capable of reaching American shores. Iran has defied Western sanctions to bolster its own nuclear programme. Pakistan has continued to improve the sophistication of its stockpile, introducing “tactical” nukes in an attempt to gain the upper hand against India. China is developing hypersonic missiles, capable of outmanoeuvring even the best anti-missile defence systems. The nuclear question has even become part of popular debate in Europe, as experts question the sufficiency of America’s security umbrella. And without course correction, there is a real possibility that these developments will beget a new nuclear race. The North Korean risk could compel South Korea and Japan to develop nuclear weapons. If Iran should develop the bomb, regional powers like Turkey and Saudi Arabia may feel tempted to join the fray. And if nuclear technologies should continue proliferating, it may well only be a matter of time until a resourceful non-state actor sets off a nuclear crisis in the 21<sup>st</sup> century.

Technological developments have also created new strategic risks. Countries are developing more usable nuclear weapons. Dual-use systems are blurring the line between the conventional and nuclear, eroding a key threshold. Advancements in missile defence capabilities have only compelled adversaries to expand their retaliatory capabilities. Offensive cyber capabilities threaten command and control structures and early warning systems, compressing critical decision-making timelines. Hypersonic weapons are creating new re-entry platforms. Increasingly, there is a growing asymmetry among nuclear weapons states: asymmetry in terms of sizes of arsenals, technological capabilities and stated nuclear doctrines. The principles of ‘parity’ and ‘mutual vulnerability’ that once underpinned bilateral nuclear arms control may no longer be valid.

Taken together, the nuclear landscape of the 21<sup>st</sup> century looks far more uncertain than ever before. Indeed, the democratisation of nuclear weapons and associated technologies is rendering assumptions of the past, obsolete. Nuclear war between major powers may not be triggered by bilateral disputes; instead, any number of

regional conflagrations may lead to unintended consequences. The principle of “deterrence” may no longer prove utilitarian in an era of nationalism and religious fanaticism. The informatisation of the battlespace will create new uncertainties, as cyberspace and artificial intelligence become more central to nuclear postures. Given these rapid transformations, it is no wonder that states around the world are once again struggling with nuclear weapons policy. And while the international community has successfully avoided the use of nuclear weapons for over seven decades, it is now worth considering if the doctrines, rules and strategies of the past remain relevant.

During the last two years in which ORF embarked on this project, it has become apparent that the international order has been unable to respond to the new realities of nuclear stability. In fact, the world has even seen new doctrines and technologies being unveiled by some nuclear weapons states, including the US and Russia. Unhappy with this lack of progress on nuclear disarmament, 122 non-nuclear weapons states (all party to the NPT) negotiated a new Treaty on the Prohibition of Nuclear Weapons in 2017. However, the fact that negotiations were boycotted by all nuclear weapons states and their allies suggests that disarmament is hardly on the horizon. Instead, most nuclear weapons states are upgrading, not downgrading, their nuclear arsenals. As on other global issues, there is a growing divide in the nuclear field and it is clear that we need a new nuclear order for the 21<sup>st</sup> century.

Despite the long-term dangers of a nuclear arms race, however, the subject itself no longer receives much popular attention. This book is an attempt to correct this as it seeks to ignite a discussion on how we must go about creating a stable nuclear order. I am grateful to all our contributors, who approach this issue with a sense of realism, reflecting their long years of experience in dealing with these issues in government, academia and think tanks, and in multilateral organisations. I would also like to acknowledge Ambassador Rakesh Sood for his contributions and leadership in initiating and guiding this and other projects at ORF and congratulate him for this very important effort. His long years of experience in nuclear policy as well as bilateral and multilateral negotiations have helped bring together the diverse perspectives presented in the book. The whole, I am sure, is greater than the sum of the parts; this book, a collection of incisive essays, will be a useful resource for scholars, practitioners and policymakers alike.

*Samir Saran*

*President, ORF*

*03 January 2019, New Delhi*



# Introduction

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Rakesh Sood

The nuclear age dawned in 1945 and by 1949, when the USSR broke the US' monopoly by exploding a nuclear bomb, the Cold War had become the new political reality. With the end of the Cold War nearly a half century later, there was a realisation that the world had undergone a political transformation for which it was difficult to find a name. That is why, even today, this period of transformation is rather prosaically described as the “post-Cold War period” or, by some, as the US' brief unipolar moment that seemed to have drawn to a close by the end of the last decade. The rather euphoric notion in certain academic circles about “the end of history” was blithely ignored by history.

The nuclear community was aware that the bipolar nuclear order that prevailed during the Cold War was now thawing and by the mid-1990s, the term “Second Nuclear Age” had started appearing in the writings of analysts such as Paul Bracken<sup>i</sup> and Colin Gray.<sup>ii</sup> There was a dim realisation that new players would emerge on the nuclear scene and after the 9/11 terrorist attacks in the US, the threat perceptions on account of global terrorism grew; they have remained a persisting concern. Yet, the international strategic community's efforts focused on preserving the existing nuclear order rather than figuring out how it may need to evolve in the so-called Second Nuclear Age. It was all too often ignored that until 1990, the contours of the conversations of the First Nuclear Age were being dictated by the political dynamics of the Cold War. Meanwhile, the ground realities have continued to change, exposing the inadequacies of the existing nuclear order. It is clear that today, new semantics is needed—one that reflects the current political dynamics—if the nuclear taboo that has existed since 1945 is to be sustained.

## Cold War and the First Nuclear Age

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The nuclear order in the First Nuclear Age was shaped gradually by two factors. First, the rivalry between the two superpowers, USA and USSR, which was primarily ideological and consequently was reflected in other domains including the nuclear. After a few hiccups, of which the 1962 Cuban Missile Crisis was undoubtedly the most serious, both states began to refine theories of deterrence even as they continued to develop and expand their nuclear arsenals. A second factor that shaped the order was the realisation that the two superpowers shared a common interest in curbing proliferation. The idea of extended deterrence was the means to ensure that allies did not get too nervous and choose to go down the nuclear path on their own.

These two factors led to the development of nuclear arms control, both bilateral and multilateral. As the rest of the world conveyed concern about the accumulating arsenals being maintained at hair-trigger alert and the risks of miscalculation and inadvertent escalation leading to global annihilation, the US and USSR saw merit in the idea of cooperative management, initiating the process of bilateral arms control after the 1962 Cuban Missile Crisis. Even though in 1962 the US nuclear arsenal was far larger (25,540 bombs) compared to that of the USSR (3,346 bombs), deterrence was in play. A key principle for deterrence stability, therefore, was the acceptance of the notion of “mutual vulnerability.” This was also underwritten by the 1972 Anti Ballistic Missile Treaty, under which both countries agreed to restrict their ABM systems deployment to ensure that each side would possess assured second strike capability. The US unilaterally withdrew from the ABM Treaty in 2002.

The US arsenal peaked during the late 1960s at nearly 32,000 nuclear warheads, bombs and other munitions while the USSR peaked in the early 1980s at nearly 40,000. Accordingly, bilateral arms control expanded to cover arms race stability by imposing limits on the numbers of specific launch systems and the warheads these could carry. The SALT, START and the INF treaties are examples of conveying a sense of managing the nuclear arms race even as it continued unabated with new technological developments of MIRVs, MaRV and cruise missiles.

The third element of bilateral nuclear arms control was crisis management stability involving dedicated communication links and the establishment of Nuclear Risk Reduction Centres to reduce the risks of miscalculation and miscommunication. Nevertheless, there were a number of false alarms and close calls as has now been authoritatively documented.<sup>iii</sup> Together, deterrence stability, arms race stability and crisis management stability constituted the three strands of bilateral nuclear arms control. Over time, communication and surveillance technologies were

employed by both sides to carry reassurance even as a parallel nuclear arms race also continued.

The most successful example of cooperative management in multilateral nuclear arms control was the Nuclear Non-Proliferation Treaty (NPT) concluded in 1968.<sup>iv</sup> Under the NPT, five countries that had exploded a nuclear device by 1 January 1967 were recognised as “nuclear weapons states” and all others were “non-nuclear weapons states” and required to accept full scope safeguards, implemented by the IAEA, to prevent any clandestine activity. The NPT was extended indefinitely and unconditionally in 1995 and has 190 states parties. The five permanent members of the UN Security Council are the same five nuclear weapons states recognised by the NPT, leading to an inevitable correlation. The commitment of the non-nuclear weapons states to accept full-scope safeguards in perpetuity was balanced by an assurance of not denying them access to any peaceful applications of nuclear science and technology, as well as an obligation on the part of the five nuclear weapons states to pursue negotiations for the eventual elimination of nuclear weapons. However, even the most ardent supporters of the NPT acknowledge that while it has been successful in curbing proliferation, the treaty has failed in registering any movement on the nuclear elimination front.

Yet another example of cooperative management was the establishment of the London Club in 1975, which later became the Nuclear Suppliers Group (NSG).<sup>v</sup> Its purpose was to control exports of nuclear and related dual use materials, equipment and technologies. It was not a treaty-based regime like the NPT but based on a set of shared understandings underpinned exclusively by concerns about nuclear proliferation. Members of the NSG are the five nuclear weapons states and others with advanced capabilities in the field of nuclear science and technology capable of exporting the items and technologies listed in the NSG lists. A number of developing countries resented such non-proliferation-based export control mechanisms, describing them as “technology denial regimes”; this sentiment would eventually diminish with changing threat perceptions. Over time, the NSG control lists grew to cover dual use materials and equipment, intangibles and know-how to prevent proliferation.

## Freezing the Nuclear Order

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**W**ith the break-up of the USSR, the Cold War came to an end. Even though Russia had as large a nuclear arsenal as the US, the ideological rivalry ended and, thereafter, neither the US nor Russia perceived the other country as an existential threat. At the same time, Russia shared the US’ proliferation concerns

regarding Belarus, Kazakhstan and Ukraine, all former Soviet republics that had significant nuclear capabilities. The US and Russia therefore had a common interest in denuclearising them and getting them to join the NPT as non-nuclear states parties while removing the nuclear weapons, missiles and other sensitive materials.

The first UN Security Council summit-level meeting, convened on 31 January 1992,<sup>vi</sup> described nuclear proliferation as “the biggest threat to regional and global peace and stability.” Consequently, the nuclear order shaped during the Cold War continued as such, placing greater emphasis on non-proliferation during the post-Cold War period. The five permanent members of the UN Security Council—which were also the five nuclear weapons states acknowledged as such by the NPT—shared a common interest in extending the NPT in 1995. Led by the US, these states were able to collectively push the non-proliferation agenda to achieve the objective of extending the NPT into perpetuity. Other countries tried but failed to extract a more definitive commitment from the P-5 regarding nuclear disarmament. The Cold War nuclear order was thus frozen, even though the underlying politics had altered.

## Changing Technology and Politics

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Simultaneously, two developments were taking place. First, technological advances were changing the nature of the battlefield with radical developments in command, control, communication, computing, surveillance and intelligence, leading to new doctrines and concepts. Second, political equations that characterised the Cold War were being rewritten.

Russia retained a broad parity with the US in the nuclear domain, and in little else besides. Eventually, it also grew resentful about its diminished global status and, wanting to recover some of its past influence, embarked on a process of nuclear modernisation and began to assert itself in its “near abroad” as a push-back to growing Western expansion into Eastern Europe. More significantly, in its recent military exercises, there is a growing reliance on early use of nuclear weapons, widely described in western literature as an “escalate to de-escalate” posture.<sup>vii</sup>

On the other hand, China was a rising economic power and becoming increasingly conscious that it was ready to take on additional responsibility as befitting its newfound status. It felt that the US’ technological lead might neutralise its assured second strike capability, which was based on a small nuclear force. Its unease is augmented by the growing assessment in the US that China is a “revisionist power.”

This led to the US rebalancing towards Asia. China has reacted to this development by developing half a dozen atolls in the South China Sea into maritime bases with military capabilities. The struggle for control in this region with the US continues as the latter seeks to conduct Freedom of Navigation Operations that it has been doing for decades. China is also taking steps to enhance the survivability of its nuclear arsenal while looking at other technologies to ensure the credibility of its deterrent. Though China still maintains a no-first-use policy, this has been subjected to increased questioning in recent years.

India and Pakistan declared themselves nuclear weapons states after a series of tests in 1998. As the only country to face two nuclear adversaries that share an “all weather friendship” on its borders, India is working towards building a triad to ensure the credibility of its deterrent. It maintains a no-first-use policy and has declared that its nuclear weapons have the limited objective of deterring a nuclear (and chemical as well as biological) threat or use. Pakistan, on the other hand, has introduced tactical nuclear weapons to ensure “full spectrum deterrence,” which keeps the option of first use open. It is also believed to have the fastest growing arsenal today.

North Korea withdrew from the NPT in 2003 and has undertaken six nuclear tests since 2006. Iran had long been suspected of undertaking clandestine nuclear activity despite being a member of the NPT, including significant enrichment of uranium. Under a Joint Comprehensive Plan of Action (JCPOA) concluded in 2015, Iran agreed to curb many of its nuclear activities and accept a more rigorous inspection regime in return for the sanctions relief. With the US unilaterally withdrawing from the deal, there is serious apprehension that Iran may well resume its nuclear activities. However, Iran has maintained that its activities are consistent with its rights under the NPT as a non-nuclear weapons state and it has no intention of making the bomb. Iran’s programme is a major source of concern in the region, especially for Israel, which has maintained a credible nuclear arsenal for decades, though its declared posture is one of ambiguity.

The Nuclear Posture Review<sup>viii</sup> undertaken by the US and announced in 2018 reverses the assumptions in three previous NPRs (under Presidents Bill Clinton, George W. Bush and Barack Obama) by declaring that global threat conditions have worsened, including in the nuclear environment. Consequently, it seeks to enhance the flexibility and range of its tailored deterrence options. The NPR concludes that US nuclear weapons are to be made more usable in order to strengthen deterrence. An ambitious 30-year modernisation plan has been put in place.

## Why the Old Order Has Ceased to Apply

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Since World War II, the US has relied on its economic weight and technological superiority to ensure military pre-eminence. The early lead in nuclear weapons is described as the first offset strategy, but this was neutralised once the USSR reached nuclear parity. The second offset relied on advances in electronics and sensors, leading to the development of laser-guided delivery systems, stealth and jamming technologies, and space-based communication and navigation. This was on display during the 1990s in Balkan theatre. The US is now embarking on its third offset strategy designed to exploit breakthroughs in 3-D printing, Artificial Intelligence and robotics, even as it chooses to increase the role of its nuclear weapons.

However, the US' economic weight and technological superiority is no longer unchallenged; moreover, the global political and economic centre of gravity is shifting from the Euro-Atlantic to the Indo-Pacific. It is a more crowded geopolitical space and no longer dominated by the bipolarity that became the defining aspect of the Cold War. Instead, it is defined by asymmetry, both in terms of nuclear capabilities and doctrinal approaches.

The US is not willing to accept mutual vulnerability vis-a-vis other potential nuclear adversaries. Freed of the constraints of the ABM Treaty, it has actively pursued missile defence programmes. This has generated concerns in both Russia and China putting paid to the idea of cooperative management, which, in any case, can no longer be limited only to US and Russia. Consequently, neither is the Cold War type of bilateral nuclear arms control politically feasible, nor do the ideas of deterrence stability, arms race stability and crisis management stability translate readily into current political realities. Nuclear equations are no longer binary equations involving an insulated nuclear dyad; instead, even when there are dyads, they are no longer insulated and often link up into chains.

Second, nuclear technology is today a 70-year-old technology and while non-proliferation measures ensure that access to nuclear materials remains restricted, developing technical skills is certainly easier today than in the 1960s and 1970s. This is one of the reasons that the threat of a non-state actor acquiring nuclear materials or a device is a much more persistent threat than in the past. If Cold War and global annihilation defined the First Nuclear Age and heightened proliferation risks and global terrorism defined the post-Cold War Second Nuclear Age, then in present times, political confrontation among major powers has made a comeback, even as terrorist groups keep up the pressure in seeking access to WMD technologies.

## Reassertion of Political Dynamics

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Attempts to deal with India and Pakistan after the 1998 tests or DPRK's decision to withdraw from the NPT or Iran's decision to pursue enrichment while being a party to the NPT showed the limitations of the existing multilateral nuclear order. It was a liberal myth that the nuclear order was built around the NPT; it was in fact built around the Cold War bipolar equation and the reality of two military alliances made it easy to find believers in the myth. Similarly, it was a myth to think that India's relations with the nuclear order would deteriorate after the nuclear tests in 1998 because it ignored post-Cold War political ground realities.

Today, in each region where nuclear risk exists—Europe, Middle East, South Asia, Northeast and East Asia—the underlying equations reflect inherent differences, and each has its own pressure points. Further, different countries have varied approaches to risk taking, depending on threat perceptions of the regimes in power. There is a school of thought in the US that believes that stability during 1990-2010 was on account of unchallenged US military dominance in all theatres; this needs to be restored through the third offsets strategy and a robust nuclear posture. However, most realists find this thesis unconvincing. On the other hand, the inability to find shared objectives implies that multipolarity increases even as multilateralism takes a backseat. These developments tend to increase the likelihood of nuclear use.

In Northeast Asia, where hopes have been kindled after successful summits between leaders of the US, North Korea and South Korea, there are issues that are legitimate and interconnected, but clearly not simultaneously achievable: regime legitimacy, human rights, cyber offences, lasting peace, reunification, and denuclearisation of the Korean peninsula. The challenge therefore is to reconcile priorities among the negotiating states. The situation is no different in the Middle East, where it is aggravated by the uncertainties surrounding the P5+1 Joint Comprehensive Plan of Action with Iran, concluded in 2015, as well as by the conflicts in Syria, Yemen and Iraq.

The simplicity of nuclear parity dictating the bipolar equation between the two superpowers during the Cold War meant that ensuring strategic stability required creating nuclear stability, which was underwritten by mutual vulnerability. To a great extent, this ensured that the nuclear taboo was not breached. During the Second Nuclear Age period of 1990-2010, unchallenged US military predominance ensured that major power confrontations were avoided and regional flare-ups (like the Kargil war between India and Pakistan in 1999) could be managed by US intervention. Today's realities are different. Strategic stability encompasses more

than nuclear stability and major powers have different views on how they see strategic stability. This is the key reason why the Cold War nuclear arms control lessons do not hold in the New Nuclear Age: the underlying political equations have changed.

As part of the nuclear modernisation, the US has sought to develop conventional prompt global strike weapons, which would not carry a nuclear payload, but its precision strike capabilities would enable it to successfully hit critical targets in a relatively short time. Further, the US is not the only country experimenting with hypersonic glide vehicles, also described as Alternate Re-entry Systems and therefore not subject to existing limits under the US-Russia New START agreement. In any case, this agreement is set to lapse in 2021, with neither side keen on extending it. The fact that these vectors may not carry a nuclear payload adds to the surrounding uncertainty. The blurring of the dividing line between *conventional* and *nuclear* adds to instability. There is a growing dependence on space-based assets not only for surveillance and communications but also for early warning. With offensive cyber capabilities on the rise, vulnerability of space-based assets often increases the fog of war while compressing timeframes for decision-making. This, coupled with asymmetry replacing the sobering notion of “mutual vulnerability,” only makes a breach of the nuclear taboo more likely.

## Crafting a New Order

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**T**he strategic community faces two challenges in crafting a new nuclear order. The first challenge is to overcome cognitive biases and realise the limitations of the existing order; key is in accepting that nuclear arms *control* has not meant nuclear *disarmament*. Rather, it was a means to diminish the likelihood of nuclear annihilation, even as it did not diminish the salience of nuclear weapons in the security calculus. It was packaged as nuclear disarmament because, since the 1980s, global nuclear arsenals have been reduced, primarily those of the US and Russia. This process, however, is undergoing a reversal. Overcoming this challenge also lies in accepting that the NPT has reached the limits of its success. It is now a treaty in perpetuity but neither can India, Pakistan, Israel and North Korea be accommodated in its framework nor is it a vehicle for nuclear disarmament. It is therefore a victim of its own success—delegitimising nuclear proliferation but not nuclear weapons—as it was reluctant to accept that the very existence of nuclear weapons was a guarantee for further proliferation.

The related challenge is to resist the natural temptation of trying to apply the Cold War arms control template to today’s equations. Russia enjoys nuclear parity with the US, but this no longer translates as superpower parity. Therefore, for

Russia, the bean-counting approach to nuclear arms control no longer contributes to strategic stability. Since neither US-China, India-China, India-Pakistan or US-North Korea are stand-alone nuclear dyads, the underlying principles of deterrence stability and arms race stability no longer hold.

Therefore, the second challenge today is to retain the existing nuclear order while accepting its limitations. There needs to be a shift in priority, from preventing nuclear annihilation to preserving the nuclear taboo. Future measures will have to focus on preventing accumulation of destabilising weapon systems that need to be maintained on high alert, or doctrines that favour early use of nuclear weapons while acknowledging that this is an age of nuclear asymmetry. Multilateral cooperation is necessary for nuclear non-proliferation and security, but it is unlikely to prevent future proliferation as that is in the nature of a maturing technology.

The following chapters address these challenges, some from a conceptual approach and others from an empirical standpoint, with the purpose of furthering a discussion on evolving a new vocabulary and grammar for a 21st-century nuclear order. The contributors include both practitioners who have been engaged in nuclear negotiations and academics; in some cases, the authors straddle both domains. While too rigid a classification is difficult, the contributions by Bowen, Kapur, Rajamohan, Tertrais and Thakur tend towards a conceptual approach and those by Haqqani, Koenig, Moon, Satoh, Tong and Baklitskiy reflect a greater leaning towards empiricism. Though the authors differ in terms of how much we can rely on old instruments and maps, there is broad agreement that we are navigating uncharted waters.

## Endnotes

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# Section I

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## **THE SECOND NUCLEAR AGE: CONCEPTS AND ASSUMPTIONS**



# Managing the Challenges of the Second Nuclear Age

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**S. Paul Kapur**

Since their detonation at Hiroshima and Nagasaki at the close of World War II, nuclear weapons have not been used in warfare. Scholars and practitioners have increasingly come to see nuclear warfare as illegitimate, violating widely and deeply held international norms. Thus, even in situations where states might have been tempted to attack each other with nuclear weapons, they have refrained from doing so.<sup>i</sup>

This “taboo” against nuclear use has provided the world with a measure of reassurance, even as it lives under the shadow of nuclear weapons. The barriers to employing nuclear weapons in a conflict are so high that states might refrain from attacking their adversaries with them even when they have strong strategic incentives to do so. Maintaining the nuclear taboo has thus been an extremely important task for the international community; its erosion will make the world considerably less secure.

Today the fate of the nuclear taboo is a major concern as the world enters what scholars and call the “second nuclear age,” which followed the end of the Cold War. As new powers develop nuclear-weapons capabilities, the nuclear taboo may prove to be less robust in the second nuclear age than it was during the first nuclear era.<sup>ii</sup> How seriously should this concern be taken? Will nuclear states exercise the same restraint during the second nuclear era that they did during the first?

This paper explores such questions in detail. The first section argues that the second nuclear age will feature several important challenges that are likely to render it considerably more dangerous than the first. The new nuclear era will be multipolar, in contrast to the bipolarity of the Cold War. This multiplicity of nuclear states will make the second

era more difficult to manage than the Cold War was. Moreover, the second nuclear era will involve new players, which may have different values and preferences than did the United States (US) and Soviet Union. They may, for instance, be more risk-accepting. The second nuclear era will also feature new weapons systems and technologies, which could complicate deterrence—particularly as different types of technology interact with each other—and impact multiple domains. Finally, these developments will occur against the backdrop of a global power transition, which will complicate efforts to limit proliferation and its associated dangers.

While these problems cannot be eliminated, they can be mitigated to a certain degree. The paper's second section offers approaches that may be useful. These include accepting the continued relevance of nuclear weapons and avoiding the temptation to seek to eliminate them; addressing the coordination problems of an expanded nuclear community through multilateral diplomacy; drawing on relevant nuclear logic and research from the first nuclear age to address problems of the second; promoting new research on the strategic implications of new, cross-domain technologies; and managing global power transitions so as not to increase the incentives for nuclear proliferation.

## Challenges of the Second Nuclear Age

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The change that primarily characterises the second nuclear age is an increase in the number of states that possess nuclear weapons. This process of expansion has already begun, as the nuclear monopoly of the P-5 has eroded with the nuclearisation of states such as India, Pakistan and North Korea.<sup>iii</sup> The second nuclear age may witness further proliferation with states such as Iran, which has agreed to abandon any efforts to develop a nuclear-weapons capability but could renege on this commitment in the future. Iranian proliferation could trigger a follow-on nuclear cascade in the Middle East, with states such as Saudi Arabia and Turkey nuclearising in response. A similar process could occur in Asia. US allies that have lost faith in US extended deterrence—such as Japan or South Korea—could decide to develop their own nuclear capabilities, which in turn could set off a chain reaction of proliferation in the region.<sup>iv</sup> Thus, in the second nuclear age, the nuclear landscape will shift from one characterised by a very small number of players to what scholars have called an “n-player environment.”<sup>v</sup>

What are the implications of the move from a small group of nuclear states to an n-player environment? Expanding the number of nuclear states may increase the likelihood of a nuclear exchange and undermine the nuclear taboo. This is the case for several reasons. First, a region or conflict dyad that does not possess nuclear

weapons cannot use them; nuclear conflict can occur only where states possess nuclear weapons. Increasing the number of nuclear-weapons states (NWS) and moving regions and relationships from conventional to nuclear environments would make a nuclear exchange possible where it was previously impossible. This would necessarily increase the danger of nuclear conflict.

Increasing the number of nuclear states and moving to an n-player world will also create management difficulties. As a rule, large groups face greater barriers to collective action than small groups do. In a nuclear context, a larger number of players will likely make joint projects, such as arms-control agreements, harder to execute. It will also make it more difficult to monitor and enforce rules that help prevent further nuclear proliferation, and to reduce the dangers resulting from the proliferation that does occur.<sup>vi</sup>

In addition to these problems, the entrance of new members into the nuclear fold will nuclearise ongoing disputes. Many disputes between recent and potential nuclear powers—such as India and Pakistan, North and South Korea, and Iran and Israel—are long running, extremely bitter and crisis prone. While nuclearising such conflicts is unlikely to lead antagonists to launch nuclear attacks on one another—since, regardless of their mutual animosity, the leaders of new nuclear states will not want to commit national suicide—a serious danger is the unforeseen and uncontrolled escalation of low-level crises between nuclear-armed adversaries, leading to a nuclear conflict that neither side would anticipate or desire.<sup>vii</sup> As so-called “strategic pessimists” have pointed out, such outcomes are especially likely because nuclear weapons can embolden newly nuclear states to settle old scores, challenging adversaries and undermining the status quo more aggressively than they would if they were armed only with conventional weapons. This aggressive behaviour increases the likelihood of crises, which can lead to unforeseen escalation and unwanted nuclear confrontation.<sup>viii</sup> By nuclearising ongoing disputes, then, the second nuclear age may not result in a sudden “bolt-from-the-blue” nuclear conflagration, but it can encourage risky behaviour that leads states to stumble into crises and escalatory spirals, with potentially catastrophic results.

This points to another problem with the expansion of the nuclear-weapons community. New nuclear states may have preferences that are far different from those of the old nuclear powers. Specifically, they may be more risk acceptant and willing to tolerate more danger than the old superpowers were. During the Cold War, the US and the Soviet Union took significant nuclear risks, training tens of thousands of strategic nuclear warheads against each other; deploying tactical nuclear weapons to the battlefield, where they were likely to come into contact with enemy conventional forces; and, in the case of the US, threatening to use nuclear weapons first in the event of conventional war against the Soviet

Union or its allies.<sup>ix</sup> Yet, despite such confrontational behaviour, the superpowers pursued relatively modest strategic goals. The US explicitly followed a policy of containment, designed to preserve the status quo, and avoided trying to roll back Soviet power from areas in which it was already established. The Soviet Union's strategic posture was less restrained; Soviet leaders hoped eventually to dominate the entire European continent and sought to advance the spread of Communism throughout the world. American leaders, therefore, worried that the Soviets might launch a massive conventional assault to overrun Western Europe. The Soviet Union did not attack the West, however, and limited aggressive behaviour mostly to peripheral regions, such as Southeast and Southwest Asia and Latin America. The Soviets may have wished for military and ideological dominion, but they were not willing to risk a devastating war to attain it.<sup>x</sup>

However, new nuclear states may not be so cautious. They may harbour deeply revisionist goals and be willing to risk national catastrophe in pursuing them. Pakistan is a case in point. Challenging India and undoing the territorial status quo in South Asia is central to Pakistan's state-building narrative. Consequently, Pakistan is willing to run serious risks to continue challenging the status quo, e.g. continuing to prosecute a militant proxy strategy against India even in a nuclear environment, which can lead to the kinds of crises and uncontrolled escalation mentioned above. In addition, Pakistan is deliberately lowering the nuclear threshold through the development of a battlefield nuclear-weapons capability, which increases the likelihood of nuclear weapons being used in the event of a conventional Indo-Pakistani confrontation.<sup>xi</sup> Observers decry the resultant danger, but danger is precisely the reason Pakistan is pursuing this policy; they hope that the possibility of nuclear escalation will deter India from retaliating and let Pakistan continue to challenge its control over Kashmir. Other proliferators may similarly have a high tolerance for risk and behave in a manner far more dangerous than the traditional nuclear powers did in decades past.

In addition to problems associated with an increase in the number of NWS, the second nuclear age will usher in a host of other challenges. For example, although competitive preferences and increased risk acceptance are likely to be especially acute in the case of new nuclear states, it may not be limited to them. Old nuclear powers may have different preferences and greater appetites for risk in the second nuclear age than they did during the first nuclear era. For instance, in the wake of the Cold War, the US and Russia drastically cut their nuclear arsenals from tens of thousands of warheads in 1989 to approximately 4,500–5,000 total warheads each today.<sup>xii</sup> Yet, there are strong indications that Russia sees an expanded role for nuclear weapons in the years ahead, using them not only for traditional deterrent missions but also to achieve compellence over conventionally superior adversaries such as NATO. For example, Russian strategists seem to believe that

nuclear weapons could help de-escalate ongoing conflicts, with limited attacks or demonstration strikes, intimidating an adversary into backing down and quitting a fight. This could aid Russian efforts in reasserting influence over Eastern and Central Europe and even in challenging NATO outright. Russian pursuit of such an offensive strategy could increase the likelihood of militarised crises, with the resulting danger of unforeseen escalation, as discussed earlier.<sup>xiii</sup>

The introduction of new technologies into the international security environment will further complicate the second nuclear age. These technologies include cyber capabilities that can attack computer systems—both large and small—across the globe, potentially without the victim’s knowledge; increasingly sophisticated conventional munitions that can strike targets quickly, accurately and from long distances; and improved missile-defence systems. These technologies could be used to disable or destroy elements of an adversary’s nuclear-weapons complex, potentially eroding its second-strike capabilities. This could be highly destabilising, encouraging states to participate in an arms-race to ensure that their nuclear arsenal is large enough to withstand a cyber or conventional attack, or to overcome an adversary’s missile-defence system. Eventually, it could even compel states to launch nuclear weapons first during a crisis, so that their forces are not destroyed or disabled before they can be deployed. China, for example, is developing road-mobile, MIRVed missile capabilities and appears to be moving its nuclear forces towards a launch-on-warning posture. It is taking these measures at least partially in response to US’ increased development of prompt global strike and missile-defence systems, which the Chinese fear could be used in tandem with the US’ large nuclear arsenal to erode China’s second-strike capability.<sup>xiv</sup> Cyber capabilities will also be troublesome, as they are difficult to monitor and allow for anonymous attacks against targets ranging from command-and-control to personnel databases to the networks that enable traditional military operations on land, sea and air. This can facilitate the blurring of lines between state and non-state actors, criminals and terrorists, as well as between operational domains, as well as complicate deterrence and retaliation.<sup>xv</sup>

These changes will occur within a larger strategic environment characterised by a major international power transition, as Chinese economic and military capabilities grow, and the US’ unipolar moment passes. Since the end of World War II, the faith of the US’ European and Asian allies in its power has been a major disincentive for them in acquiring nuclear weapons. They have not needed to develop their own nuclear capabilities, because they could rely on US extended nuclear deterrence to protect them from potential aggression. However, should they begin to question the US’ willingness or ability to continue extending deterrence to them, these states might well decide to develop their own arsenals, particularly if Chinese or Russian capabilities and intentions appear threatening.<sup>xvi</sup>

Thus, while the nuclear taboo will not disappear in the second nuclear age, it is likely to rest on shakier ground than it did during the first nuclear age. States will not deliberately seek to start nuclear wars. However, combination of larger numbers of nuclear powers, problematic preferences, the nuclearisation of ongoing disputes, the development of potentially destabilising technologies and international power transitions may increase the likelihood of nuclear conflict.

## Addressing the Challenges of the Second Nuclear Age

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**W**hat can be done to address these challenges? First, it is important to be realistic. Whatever one might prefer, the fact is that nuclear weapons will not disappear and are likely to proliferate to some degree in the years ahead. It is better to try to manage this process than to pursue unrealistic arms-control goals, which can be ineffective and even counterproductive. Recent US policy illustrates some of the related pitfalls. In the hope of mitigating the dangers of the second nuclear age, the US publicly pressed for global nuclear disarmament; cut its nuclear arsenal; rhetorically attempted to de-link nuclear weapons and great-power status; and developed conventional weaponry capable of performing rapid, long-range strike missions. American leaders believed that these measures could reduce other nations' desire to develop or expand nuclear-weapons capabilities and perhaps even encourage existing nuclear states to limit their capacities. This was a central premise of the Obama Administration's 2010 Nuclear Posture Review (NPR).<sup>xvii</sup>

This approach does not appear to have succeeded. Indeed, the US' main strategic competitors—Russia and China—have been improving, not restraining, their nuclear-weapons programmes. As noted earlier, Russia is increasing the role of nuclear weapons in its strategic posture, in the hope of not only maintaining a deterrent capability but also acquiring compelling leverage over potential adversaries. In addition, the Russians have repeatedly refused US offers to jointly cut the two countries' strategic arsenals by one-third, and they are now withdrawing from a treaty that requires Russia and the US to destroy military plutonium stockpiles.<sup>xviii</sup> Although China possesses just a fraction of the US' nuclear capability, with an arsenal of approximately 260 warheads, its inventory appears to be growing. It is also developing more effective delivery platforms, such as the J-20 and J-31 strike aircraft and the DF-41 intercontinental ballistic missile, which is expected to carry 10 independently targeted warheads.<sup>xix</sup>

Advances in conventional weapons systems seem unlikely to slow or reverse these trends. In theory, the development of sophisticated conventional strike capabilities could enable states to substitute them for nuclear forces, thereby reducing nuclear weapons' roles in states' strategic postures. The US' prompt global strike is an example of this type of capability.<sup>xx</sup> Its third offset strategy, which seeks to create new technologies, incorporating such components as artificial intelligence, autonomous vehicles, lasers, and advanced aeronautics to counter growing technological prowess on the part of adversaries such as Russia and China, could lead to the development of more such advanced non-nuclear weapons systems.<sup>xxi</sup> It seems unlikely, however, that many states will be able to develop and deploy these types of weapons. The technological sophistication and financial resources required to do so will be prohibitive. China's example suggests that states lacking such advanced conventional weapons will simply rely more heavily on nuclear forces to counteract them, increasing arsenal size, improving delivery systems and lowering response times. Thus, conventional systems, which in theory could reduce dangers in the second nuclear age, can actually increase them.<sup>xxii</sup>

The US' attempts to de-emphasise nuclear weapons have also risked harming its relations with allies and partners, potentially leading them to doubt its resolve, eroding their confidence in extended deterrence and incentivising them to proliferate. Moreover, attempts to downplay the importance of nuclear weapons have smacked of hypocrisy, given continued US spending on its nuclear complex and maintenance of all its traditional deterrent missions. Despite the many dangers of nuclear weapons, particularly in the second nuclear age, the US still considers them to be useful, as do many other states. Thus, it is highly unlikely that the US—through argument or example—will be able to convince newer or potential nuclear powers to abandon or curtail their upcoming nuclear programmes. The US will have to seek more realistic approaches to mitigating its dangers.<sup>xxiii</sup>

As noted above, the biggest problem of the second nuclear age is likely going to be difficulties associated with an increase in the number of nuclear players. Ongoing multilateral fora, incorporating both longstanding and new NWS, can help address coordination problems. Their substantive goals could include devising agreements to limit destabilising weapons systems, such as nuclear or conventional counterforce and missile-defence systems, which can create arms-race and first-use incentives; sharing best practices across the nuclear domain, ranging from physical security of nuclear materials and technologies to avoiding crisis escalation; and jointly devising means of mitigating the destabilising potential of new, non-nuclear technologies, such as cyber capabilities.<sup>xxiv</sup>

When pursuing these goals, states in some cases will be able to draw on existing expertise. For example, the older nuclear powers will have extensive experience regarding physical protection and security and may be able to share some of their successes and challenges in this area with the larger nuclear community.<sup>xxv</sup> States can also benefit from the research on n-player deterrence and crisis escalation conducted during the Cold War, as well as work on the general problem of n-player games. N-player models are more complex and less well known than the bi-polar models that dominated much of the Cold War strategic discussion. Nonetheless, substantial research on this subject exists, and it can help states to address some of the challenges that the increase in players will pose in the second nuclear age.<sup>xxvi</sup>

Other important areas remain relatively undeveloped, and states will be less able to draw on existing bodies of knowledge in addressing them. For example, the US and other nuclear states will need to devise strategies to help them grapple with the challenges of new technology, particularly in the cyber realm. Basic issues remain unsettled, including the applicability of concepts such as deterrence and arms control to the cyber domain; how cyber and other new technologies may interact to produce unforeseen outcomes; how cyber-related activities could affect outcomes in other domains; and thresholds for unacceptable behaviour in the cyber realm.

In the policy world, governments and security organisations are taking significant steps to adapt to this changing environment. The US military, for example, has recognised cyberspace as a separate domain, alongside land, sea, air and space. Cyber warfare also has its own unified combatant command, USCYBERCOM, charged with directing, synchronising, and coordinating cyberspace planning and operations.<sup>xxvii</sup> The Central Intelligence Agency, for its part, has created new “mission centres,” where operatives, analysts and cyber specialists work together on common problems. The agency has also created a new Directorate for Digital Innovation to leverage cyber capabilities in intelligence collection and analysis. At the governmental level, the US has undertaken, with China, what might be called a rudimentary form of cyber-arms control, agreeing to refrain from conducting or supporting the cyber-related theft of intellectual property to benefit businesses or commercial sectors.<sup>xxviii</sup>

Even as they adopt these measures, however, officials admit that the US lacks a coherent strategy for addressing the challenges of cyber warfare. Thinking on the relevant concepts, issues and capabilities remains underdeveloped.<sup>xxix</sup> Work in this area is moving forward, however, and will help in policy formulation in future. One of the most important and promising subjects of emerging study is cross-domain deterrence. Deterrence enables a state to achieve its desired ends without the cost and risk of combat and is thus preferable to warfighting (even

if successful). Cross-domain deterrence will enable a state to use capabilities in one area to prevent undesired action in another. This could be especially useful for cyber capabilities, as they are inherently cross-domain; cyber capabilities are not useful in themselves but are valuable insofar as they enable states to operate in other areas. Thus, actions in the cyber realm are often directed, and have effects, elsewhere.<sup>xxx</sup>

The development of a cross-domain ability to deter malicious cyber activity is increasingly urgent. States are learning that they can use cyber attacks to affect outcomes in other domains while avoiding retaliation, since attacks in the cyber realm may not meet the victim's response threshold and can be difficult to trace. For example, in 2007, Russia apparently launched a series of highly damaging denial-of-service attacks against Estonia. Although the Estonians considered invoking NATO's Article Five collective-defence clause, they ultimately decided not to, because other NATO states did not consider cyber attacks to be as damaging as military action, and Russian involvement remained unproven.<sup>xxxi</sup> Devising means of deterring states from employing these types of destabilising strategies will be one of the foremost tasks in the second nuclear age.

Finally, the US will need to manage ongoing power transitions prudently. Even if some degree of relative decline is inevitable, the US will remain the only actor with the political and military clout necessary to undergird an international system in which likeminded states peacefully pursue their interests in an environment characterised by open access to commons, free trade, deliberative decision-making and rule of law. This will require continued and robust US engagement in Europe, the Indian Ocean/Asia-Pacific region and elsewhere. Indeed, former NATO secretary general Anders Fogh Rasmussen has gone so far as to say, "We need America as the world's policeman. We need determined American global leadership."<sup>xxxii</sup> Even if this somewhat overstates the case, active US engagement—including robust extended nuclear deterrence—helps reduce the dangers of the second nuclear age by making conventional conflicts less likely and by reducing the incentives for states to seek protection through the development of their own nuclear capability.

Finally, one must remember that despite its ethical component, the nuclear taboo resulted largely from states' fear of devastation. Thus, in the effort to preserve the taboo in the second nuclear age, appeals to morality and the development of new strategies to promote cooperation may have limited impact. Ultimately, maintaining the ability to inflict unacceptable damage on aggressive states will be essential to ensuring stability. The preferences of risk-acceptant, revisionist nuclear powers can be difficult to change and the only way to prevent them from disrupting the international system may be to threaten them with catastrophically

damaging consequences. Responsible nuclear powers will have to maintain the will and the capability to do so. That is not a new insight, but it is often forgotten amidst talk of a new nuclear environment. It will be useful to remember this if the nuclear taboo and strategic stability are to be preserved in the second nuclear age.

(The views expressed in this paper are solely the author's and do not necessarily represent those of the US Department of Defense.)

## Endnotes

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- i. See, for example, Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons Since 1945* (Cambridge: Cambridge University Press, 2008).
- ii. See, for example, Paul Bracken, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York: Times Books, 2012).
- iii. Israel is another nuclear state that exists outside the fold of the P-5. It is widely believed to have acquired a nuclear capability during the late 1960s, however, and I therefore do not consider it to be part of the second wave of nuclear-armed states. See Avner Cohen, "Israel: A Sui Generis Proliferator," in *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, ed. Muthiah Alagappa (Stanford: Stanford University Press, 2008), 245.
- iv. See Graham Allison, "A Cascade of Nuclear Proliferation," *New York Times*, 17 December 2004; David Santoro, "Will America's Asian Allies Go Nuclear?" *National Interest*, 30 January 2014; and Wade L. Huntley, "Speed Bump on the Road to Global Zero: U.S. Nuclear Reductions and Extended Deterrence in East Asia," *Nonproliferation Review* 20, no. 2 (July 2013): 305–338.
- v. Andrew F. Krepinevich and Jacob Cohn, *Rethinking Armageddon: Scenario Planning in the Second Nuclear Age* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2016), 2–3.
- vi. See Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge: Harvard University Press, 1965).
- vii. See Paul Bracken, op. cit., 114–117, 137, 227–229. On the dangers of unplanned escalation, see generally, Barry Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca: Cornell University Press, 1991).
- viii. See Sumit Ganguly and S. Paul Kapur, *India, Pakistan, and the Bomb: Debating Nuclear Stability in South Asia* (New York: Columbia University Press, 2010).
- ix. See Richard Smoke, *National Security and the Nuclear Dilemma: An Introduction to the American Experience in the Cold War* (New York: McGraw-Hill, 1993), 84; Bernard Brodie, *Escalation and the Nuclear Option* (Princeton: Princeton University Press, 1966), 28; and S. Paul Kapur, "India and Pakistan's Unstable Peace: Why Nuclear South Asia is Not Like Cold War Europe," *International Security* 30, no. 2 (Fall 2005): 132–134.

- x. John Lewis Gaddis, *The Cold War: A New History* (New York: Penguin, 2005): 10–14 and 29–30; John Lewis Gaddis, “The Long Peace: Elements of Stability in the Postwar International System,” *International Security* 10, no. 4 (Spring 1986): 22–25, 37–40; and John J. Mearsheimer, “Back to the Future: Instability in Europe After the Cold War,” *International Security* 15, no. 1 (Summer 1990): 27–29, 34.
- xi. S. Paul Kapur, *Jihad as Grand Strategy: Islamist Militancy, National Security, and the Pakistani State* (New York: Oxford University Press, 2016), 124–125; Rajesh Basrur, “South Asia: Tactical Nuclear Weapons and Strategic Risk,” RSIS Commentaries 65, 27 April 2011.
- xii. Arshad Mohammed and Phil Stewart, “U.S. Reveals Size of Nuclear Arsenal,” *Reuters*, 3 May 2010; and Arms Control Association, “Nuclear Weapons: Who Has What at a Glance,” October 2016.
- xiii. Evan Braden Montgomery, *Extended Deterrence in the Second Nuclear Age: Geopolitics, Proliferation, and the Future of U.S. Security Commitments*, Center for Strategic and Budgetary Assessments, 2016, 20–23.
- xiv. China’s nuclear arsenal of about 260 warheads, though growing, remains relatively small and thus could be vulnerable to first-strike dangers. Although Chinese security managers view the US as their primary strategic competitor and fear possible US efforts to erode China’s retaliatory capacity, they do not seek to match US nuclear forces quantitatively. They view nuclear weapons as providing only a small part of China’s overall deterrent capability. The rest of Chinese deterrence, they believe, comes from other capabilities, especially conventional military forces, which the Chinese will employ to deter and, if necessary, defeat US conventional aggression. Nuclear weapons, in Chinese view, serve strictly to deter nuclear attack, and China therefore requires only a modest-sized arsenal. See Gregory Kulacki, *The Chinese Military Updates China’s Nuclear Strategy*, Union of Concerned Scientists, March 2015, 1–4, 6–7; Gregory D. Koblentz, *Strategic Stability in the Second Nuclear Age*, Council on Foreign Relations Special Report No. 71, November 2014, 26–27; Krepinevich and Cohn, *Rethinking Armageddon*, 10; Omar Lamrani, “China Moves to Expand its Nuclear Capabilities,” Stratfor, 12 April 2016; and Hans M. Kristensen and Robert S. Norris, “Chinese Nuclear Forces, 2016,” *Bulletin of the Atomic Scientists* 72, no. 4.
- xv. David Rohde, “Is the CIA Ready for the Age of Cyberwar? Behind the Most Sweeping Reforms in the Agency’s History – and Their Limits,” *Atlantic*, 2 November 2016.
- xvi. Christopher Layne, “The Unipolar Illusion: Why New Great Powers Will Rise,” *International Security* 17, no. 4 (Spring 1993): 5–51; Michael S. Chase and Arthur Chan, “China’s Evolving Deterrence Concepts and Capabilities,” *Washington Quarterly* 39, no. 1 (2016): 119, 130; “Montgomery, *Extended Deterrence*, 2–4, 19–39; and Shane Smith, “Implications for U.S. Extended Deterrence and Assurance in East Asia,” *North Korea Nuclear Futures Series*, US–Korea Institute, November 2015, 7, 15, 17–18.
- xvii. S. Paul Kapur, “More Posture Than Review: Indian Reactions to the Nuclear Posture Review,” *Nonproliferation Review* 18, no. 1 (March 2011).
- xviii. Daryl G. Kimball and Kingston Reif, “It’s Time to Cut America’s Nuclear Arsenal,” *Bulletin of the Atomic Scientists*, 30 September 2016; and Andrew E. Kramer, “Vladimir Putin Exits Nuclear Security Pact, Citing ‘Hostile Actions’ by U.S.,” *New York Times*, 3 October 2016.

- xix. Zachary Keck, “China Tests Its Most Dangerous Nuclear Weapon of All Time,” *National Interest*, 19 August 2015; and Anthony H. Cordesman with Joseph Kendall and Steven Colley, “China’s Nuclear Forces and Weapons of Mass Destruction,” Center for Strategic and International Studies, July 2016.
- xx. According to some estimates, the US could substitute prompt global strike conventional munitions for up to 30 percent of its current nuclear missions. See Hans M. Kristensen, “Talk at USSTRATCOM Deterrence Symposium 2012,” <http://fas.org/blogs/security/2012/08/talks/>. See also Kapur, “More Posture Than Review.”
- xxi. “The Third U.S. Offset Strategy and Its Implications for Partners and Allies,” Speech by Deputy Secretary of Defense Robert Work, Washington, D.C., 28 January 2015.
- xxii. See Kristensen, “Talk at USSTRATCOM.” This is not to suggest that advanced US conventional weapons systems, which can significantly enhance the flexibility of US strategic options, are without value. It is simply to suggest that these new capabilities may not be helpful in countering nuclear proliferation. Note that China and Russia are working to develop long-range, precision-guided strike weapons of their own. Meanwhile, they are adopting nuclear-based countermeasures to balance US capabilities. See Chase and Chan, “China’s Evolving Deterrence Concepts,” 125–126; Nikolai N. Sokov, “Upping the Ante: Implications of Russia’s Pursuit of Precision Conventional Strike Weapons,” *WMD Junction*, James Martin Center for Nonproliferation Studies, 20 December 2013; Yevgeniy Miasnikov, “Long-Range Precision-Guided Conventional Weapons: Implications for Strategic Balance, Arms Control, and Non-Proliferation,” Research Paper, International Commission on Nuclear Non-Proliferation and Disarmament, 13–15; and Lora Saalman, “Prompt Global Strike: China and the Spear,” Working Paper, Asia Pacific Center for Strategic Studies, [http://apcss.org/wp-content/uploads/2014/04/APCSS\\_Saalman\\_PGS\\_China\\_Apr2014.pdf](http://apcss.org/wp-content/uploads/2014/04/APCSS_Saalman_PGS_China_Apr2014.pdf).
- xxiii. Kapur, “More Posture Than Review,” 76–78.
- xxiv. Note that the issue of participation in such fora can pose political challenges. Existing nuclear states may not wish to legitimise new proliferators by inviting them to join. And new proliferators may not trust institutions created and managed by the traditional nuclear powers. Both sets of states will have to be convinced that the advantages of broad-based participation outweigh its potential downsides.
- xxv. For example, the US has made public the findings from its investigation into a 2012 security breach at the Y-12 National Security Complex. See United States Department of Energy, Inquiry into the Security Breach at National Nuclear Security Administration’s Y-12 National Security Complex, DOE/IG-0868, August 2012.
- xxvi. See, e.g., Martin Shubik, “Game Theory Models of Strategic Behavior and Nuclear Deterrence,” Cowles Foundation for Research in Economics, Paper No. 829, Yale University, 1987; M. Ali Khan and Yeneng Sun, “Non-Cooperative Games With Many Players,” in *Handbook of Game Theory, With Economic Applications*, eds. Robert Aumann and Sergiu Hart (Amsterdam: Elsevier, 2002); and Jonathan Widger and Daniel Grosu, “Parallel Computation of Nash Equilibria in N-Player Games,” *Proceedings of the 2009 International Conference on Computational Science and Engineering 1* (2009): 209–215.

- xxvii. See “Achieve and Maintain Cyberspace Superiority: Command Vision for U.S. Cyber Command,” <https://www.cybercom.mil/Portals/56/Documents/USCYBERCOM%20Vision%20April%202018.pdf?ver=2018-06-14-152556-010>
- xxviii. Rohde, “Is the CIA Ready for Cyber War?” and The White House, Office of the Press Secretary, “FACTSHEET: President Xi Jinping’s state visit to the United States,” 25 September 2015.
- xxix. Ibid.
- xxx. Jon R. Lindsay and Erik Gartzke, “Cross-Domain Deterrence as a Practical Problem and a Theoretical Concept,” in *Cross-Domain Deterrence: Strategy in an Era of Complexity* [unpublished manuscript], eds. Erik Gartzke and Jon R. Lindsay, 18–19.
- xxxi. Ibid., 13. Note that, in the cyber domain, it may be difficult even to know that one has been attacked, since breaches may not be detected for long periods of time. See Jeremy Barbanell, “Needing a New Approach to Address Employee Data Breaches in the American Workplace,” *Journal of Law and Cyber Warfare* 3, no. 4 (Winter 2015): 49–50.
- xxxii. Dominic Waghorn, “America Needs to be the World’s Policeman, Former NATO Chief Says,” *Sky News*, 3 November 2016.



# The Second Nuclear Age: Primacy of the Political

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C. Raja Mohan

## Introduction

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The strategic community around the world is now quite familiar with the notion of the ‘Second Nuclear Age’ that was postulated by a number of scholars after the Cold War.<sup>i</sup> Paul Bracken, who has written most extensively on the subject, identified a number of features that distinguished the second nuclear age from the first. These included the shift of the nuclear theatre from Europe to Asia, the extraordinary rise of nuclear nationalism in the developing countries, doubts about the Asiatic regimes adopting ‘Western rationality’ that limited nuclear conflict in the first nuclear age, the prospect for nuclear terrorism, and the ‘second mover’ advantages that lifted many of the technical and industrial barriers for the entry of new players into the nuclear club.<sup>ii</sup> Whether or not one agrees with all of Bracken’s formulations, he does indeed capture the essence of the important shift from nuclear politics among great powers, to proliferation of nuclear weapons in the non-Western world. Diminishing conflict among great powers after the fall of the Berlin Wall and the collapse of the Soviet Union tended to reduce the salience of the nuclear factor in the relations among the great powers. A number of factors helped move the focus away from the question of nuclear balance in the Euro-Atlantic domain and towards the spread of weapons of mass destruction to additional countries. These factors included the discovery of a clandestine nuclear weapon programme in Iraq after the US-led coalition invaded the country to end its occupation of Kuwait (1990-91), the uncovering of a massive nuclear black and gray market organised around the Pakistani nuclear scientist, A.Q. Khan, and the surprisingly rapid advances in the nuclear weapons programme of North Korea and Iran.

These developments demanded that the world come to terms with the weaknesses of the extant non-proliferation regime. It also raised questions about strategic stability in the various regions that had new nuclear weapons powers. While the danger of a nuclear war among the major powers receded, the fear of a regional nuclear war especially in Asia and the Middle East gained considerable ground since the early 1990s. As Islamist terrorism, with its roots in the Middle East, became a major threat to international security, the prospect of extremist groups gaining access to sensitive nuclear material and using them to threaten mass violence had become a major concern. There was also the apprehension that even limited number of nuclear weapons in the hands of a state could allow it to alter the regional balance of power and prevent the United States (US) from intervening to secure its allies.

As a result, the Western world, especially the US, declared that the spread of weapons of mass destruction and their delivery systems was the “most important threat to international security.” Although not every major power agreed with the US on the intensity of the threat, the American dominance of international discourse in the unipolar moment meant that there was little contestation of its formulations. Washington also took the lead in revising the non-proliferation regime, developed unilateral and multilateral approaches to countering proliferation of WMD by military means, and resorted to regime change to enforce a rollback of nuclear capabilities, for example, in Iraq. Although some have seen the post-Cold War efforts to limit proliferation as vastly successful, others have a different view. Bracken, for example, has argued: “The United States did nearly everything it could to foster global antinuclear policies after the cold war. I cannot think of any policy in American history, not the Monroe Doctrine, not liberal internationalism, not containment that had more widespread, bipartisan support in domestic politics, or more energetic backing. The problem is this: it just didn’t work. Other countries simply didn’t buy it. They were sovereign nations in charge of their destiny so they could choose to see the bomb or get it. The spread of the bomb, and other advanced military technologies, wasn’t some aberration or false start, a path that was briefly followed until people woke up to the dangers. As a result, the bomb has become deeply entrenched in international relations, at the global and regional levels.”<sup>iii</sup>

Although many would find this view extreme, it is important not to forget this cautionary note in the otherwise raucous debates that have surrounded non-proliferation since the end of the Cold War.

This paper is an attempt at explicating some of the problems involved in devising policy responses and solutions to the challenges of the second nuclear age. It explores the issues involved in relating nuclear weapons to the changes in the

global power distribution and the problems of regional security in Eurasia. It concludes with the proposition that putting politics above nuclear theology is critical for developing a practical approach to limiting the dangers of weapons of mass destruction in the Second Nuclear Age.

## Nuclear Weapons and Changing Power Distribution

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One of the central themes of the current global discourse has been the rise of Asia and its impact on the structure of international relations, including the changing nature of distribution of power between the East and West and within Asia itself. However, rarely has this debate intersected with the post-Cold War debates on nuclear weapons and arms control. The nuclear narrative remains rooted in the framework that emerged in the interaction between the United States and the Soviet Union during the Cold War. That framework had two axes: bilateral arms control between Washington and Moscow (Strategic Arms Limitation Talks and its follow-on process), and their cooperation in the multilateral efforts to limit the spread of nuclear weapons to third countries (the NPT regime). Throughout the Cold War, Asia remained marginal to great power nuclear arms control and central to the proliferation question. Despite the rise of China and the emergence of India, and the impact of both on great power relations, there is little change in the ideas that dominate the nuclear discourse. The renewed tensions between America and Russia over the last few years—especially since the Russian annexation of Crimea in Ukraine in 2014—has put the East-West nuclear paradigm back in focus. The traditional framework of arms control seems to be back in the spotlight, given the continuing argument over missile defences and its relationship to US-Russian arms control, the unravelling of the 1987 Intermediate Range Forces Treaty, the danger of disagreements on plutonium disposition and the associated conventional arms reduction agreements in Europe. While the breakdown of the US-Russian compact in Europe is indeed significant and its consequences for arms limitation are serious, it is not entirely persuasive that the bipolar framework is of great use in addressing the complexity of a nuclear multipolar world.

One of the core assumptions of the first nuclear age was the proposition that the two axes of nuclear framework could be kept separate. In the second nuclear age, the traditional distinction between the vertical and the horizontal is beginning to blur. It is not that the connection between the two was entirely absent in the first nuclear age. After all, the problem of Europe and the deployment of US nuclear weapons there dogged the bilateral relationship from the outset. During negotiations for the INF (The Intermediate-Range Nuclear Forces) Treaty, the question of their deployment in Asia also figured prominently. Washington and

Moscow managed to regulate this effectively and prevent it from complicating their bilateral arms control. One reason for that was the fact that the importance of the regional dimension was overwhelmed by the imperative of managing the global. The reduction of the US-Russian arsenals, the rise of China, and the emergence of other powers like India are making the management of the nuclear arms control a lot more challenging.

Consider, for example, the US-China nuclear dynamic. During the Cold War, the US and Russia were defined as “super powers” and the regulation of their arms competition was the most important preoccupation of the international community. The global power shift has made the US-China equation the defining concern of our time. The ideas of parity and symmetry that tended to define US-Russian arms control have less relevance in Asia, given the small size of the Chinese arsenal relative to that of the US. Missile defence is certainly an important issue for China but not necessarily in the same way as it matters for Russia. Beijing has put special emphasis on space and cyber domains in the denial strategy that it has developed to counter the forward military presence of the US in East Asia.

The US, in turn, is trying to blunt China’s strategy by developing new military capabilities and doctrines to penetrate China’s defences. The nature of this new competitive dynamic has become a key issue to ponder in Asia, along with the problem of distinguishing between conventional and nuclear weapons, and the danger of nuclear escalation. Meanwhile, the idea that US and China need a framework for arms control has begun to gain traction, although there is insufficient understanding of how that could be developed in a sustainable manner and how it might differ fundamentally from the experience of regulating the old strategic competition between the US and the Soviet Union.<sup>iv</sup> For its part, China has found it rather convenient to argue that it is not bound to join the nuclear arms control process until the US and Russian arsenals come down to the current levels of the Chinese nuclear quiver that is said to be about 400-odd weapons. There is little prospect at this stage that it is likely to happen. As Russia modernises its nuclear arsenal, there is pressure on America to do the same and the current downturn in US-Russia relations is unlikely to help. The US-China engagement, meanwhile, is already focused on developing bilateral agreements on cyber confidence building measures rather than nuclear arms control.<sup>v</sup>

If security dilemma characterised the nuclear politics between the US and Soviet Russia, the idea of a ‘security trilemma’ has begun to challenge policymakers in the current multipolar world. In a security dilemma, actions by one state to improve its security are seen as degrading the position of the other. In a security trilemma, actions taken by one state in response to those of a second, produce changes in the policies of the third power. Richard Haass sums it up: “As states see and respond to

the actions and perceived intentions of others, this dynamic could ripple through all the world's nuclear powers, which are connected by different but intersecting deterrence relationships.”<sup>vi</sup>

Consider as well the impact of the US decision to integrate India into the global nuclear order and offer some nuclear exceptions to Delhi. Beijing, however, has seen this as part of the US effort to draft India into the containment of China. As Beijing used the non-proliferation argument to limit India's entry into the nuclear order, Washington and the Western powers justified it as strengthening the NPT regime. In response, China has violated its existing commitments under the Nuclear Suppliers Group to sell more reactors to Pakistan.<sup>vii</sup> In the Korean Peninsula, the major powers agree on the goal of denuclearisation but do not agree on the mechanics of getting there. Korea is in the front yard of China. That Beijing sees its relationship with the Korean Peninsula as that between “teeth and lips” limits the possibilities of genuine cooperation between the US and China. In the first nuclear age, Washington and Moscow, allies in the Second World War and rivals in the Cold War, had a shared interest in denuclearising Germany and Japan. While they could not stop their war-time allies France and Britain from going nuclear, the arsenals of Paris and London had little impact on the central balance. The situation is rather different in the Second Nuclear Age, where India—and potentially Japan and Korea—can significantly complicate the deterrence calculus of China and America.

## Regional Nuclear Security in Eurasia

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**M**uch of the concern in the second nuclear age has been about the management of the nuclear challenges in three regions: Middle East, the South Asian subcontinent and the Korean Peninsula. Europe has not been a problem. Amidst the Russian assertion, however, as well as the uncertainty about US commitments to NATO, Europe too could eventually emerge as a problem region. Given its strategic significance and extreme volatility, the Middle East has drawn expansive attention of the major powers in preventing non-proliferation. Since the end of the Cold War, the international community encouraged Libya to voluntarily give up its nuclear programme, force Iraq to wind down its WMD programmes after the Gulf War of 1990-91 to liberate Kuwait from the occupation of Saddam Hussein, attacked a suspected reactor in Syria, and patiently negotiated a complex agreement to encourage Iran to accept its non-proliferation obligations under the NPT. Unlike in the Middle East, where the use and threat of use of force have dominated the non-proliferation approaches, preventive diplomacy has been the main theme in the Subcontinent. Strategic considerations of Western partnership with Pakistan and India at different moments have led to a different set of outcomes than the

Middle East. The essence of these outcomes was the international acceptance of the Subcontinent's nuclear weapons. Although concerns about a nuclear conflict in the Subcontinent endure, the capacity of the international system to address the sources of instability—Pakistan's support to cross-border terrorism and India's inability to resolve its outstanding disputes—means the current South Asian nuclear stalemate is likely to continue. If the major powers have settled down to encouraging bilateralism in the Subcontinent, the pursuit of multilateralism has been the dominant approach to reverse the North Korea's nuclear proliferation. Although there is consensus among the major powers on denuclearising the peninsula, there is mounting frustration at the repeated failures to persuade the regime in Pyongyang to change course. If problems of regime security and regional conflict appear to be at the core of the problem in the three regions of the Subcontinent, the international discourse, both academic and policy, tend to focus exclusively on the structure of the nuclear arsenals. Plugging this gap remains the key challenge.

The greatest challenge to nuclear stability is likely to come from a very different source than the regional proliferation that took up much political energy in the Second Nuclear Age. That source is the declining political credibility of America's extended nuclear deterrence in Eurasia. Since the end of the Second World War, the US military alliance system in Europe and the Far East with forward deployed conventional and nuclear forces was widely seen as the sheet anchor of the regional security system. The US also took a larger role in the Middle East after the British withdrawal from the East of Suez at the turn of the 1970s. That system is now fraying at the edges amidst the assertion of Russian and Chinese power and the popular ennui in America with its expansive foreign military commitments.

## The Trump Conjuncture

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What seemed an abstract discussion on US alliances and extended nuclear deterrence acquired a sharp edge during the 2016 election season in the United States. Donald Trump, the nominee of the Republican Party, who surprised America and the world by his victory, had accused the European and Asian allies as free riders and questioned the utility of the NATO in Europe and the bilateral alliances in Asia with Japan and South Korea. Trump demanded that the allies pay more for American protection. If they did not, he said, he would withdraw US forces from Europe and Asia. To make matters worse, Trump also suggested that he might not object if Japan and South Korea developed nuclear weapons to defend themselves. As he was pilloried by the establishment for being irresponsible on

the nuclear issue, Trump seemed to walk back. But the problem of burden-sharing and extended deterrence have not disappeared, they have acquired a sharper edge after Trump's victory in the elections. Although the idea of "burden sharing" had long animated US alliance politics, it has acquired a new edge today amidst the shifting balance of power in Eurasia and the American fatigue with what Trump calls "globalism."

The policies adopted by the Trump Administration ensured that the latent contradictions that were simmering in the last few years came to the fore. The Trump disruption has been visible in at least four areas. First, his aggressive questioning of the alliances and the demand that the allies do more for their own security, has raised serious questions about the long-term political trajectory the United States and the real possibility that it might return towards an isolationist posture. The 'strategic autonomy' and the need to strengthen one's own capabilities has become an important element of the political discourse in Europe and East Asia. Trump has compelled many of America's non-nuclear allies to reconsider their atomic abstinence. He has reignited national nuclear debates in Germany and Japan that had foresworn national nuclear weapons in favour of US atomic umbrella. It is by no means clear what form these debates might acquire over the near term, but the framework of American extended deterrence certainly looks shaky.<sup>viii</sup>

Second, the Trump Administration's announcement in October 2018 that the US intends to withdraw from the INF Treaty dealt a big blow to the traditional template of US-Russian arms control.<sup>ix</sup> The idea that US and Russia, as nuclear super powers, could work out an arms control agreement without reference to third parties is likely to disappear along with the INF treaty. Although the Trump Administration pointed to the Russian violations of the treaty, it also argued that the dramatic expansion of the Chinese missile arsenal since the signing of the INF treaty in 1987 is also an important reason for discarding the INF Treaty. The problem was not just with the iconoclasm of Trump. The US military leadership has been arguing that the INF treaty has begun to constrain its ability to respond to the threat from China's land-based missile arsenal to American forward military presence and the ability to deter Beijing. The idea of a universal INF treaty has been advocated by many, but Beijing has shown no interest in joining such a treaty. It is also unlikely that other countries that possess land-based intermediate range missiles—India, Pakistan, and North Korea—would accept a global ban on land-based medium range missiles. The problems of regulating nuclear weapons in a multipolar world is being reinforced by the recognition that arms control in Europe and Asia can't be dealt with in separate boxes.

President Trump has also altered the regional arms control debates by seeking a nuclear deal with North Korea's Kim Jong-un and breaking the deal that his predecessor, Barack Obama, had negotiated with Iran. In a great irony, Trump's seemingly positive outreach to North Korea and the negative approach to Iran have both drawn strong criticism from the arms control traditionalists.<sup>x</sup> In both instances, however, Trump seemed to be taking a political rather than technical approach to arms control. In the Iran case, the emphasis, for good or bad, is on changing the behaviour of the Islamic Republic if not the regime itself. It is based on the argument that the Obama deal empowered Iran at the expense of its Arab neighbours many of whom have relied on the US for their security. The Trump Administration's emphasis is on changing that threat rather than merely constrain Tehran's nuclear programme. In Korea, Trump is betting that changing the behaviour of the Kim Jong-un regime, through reconciliation, is the key to ending its nuclear proliferation threat. While arms controllers have attacked this plan as naive, the South Korean president Moon Jae-in, seeking a political thaw with the north is fully supporting President Trump. In both cases, Trump has put regional political arguments above the minutiae of arms control.

## Primacy of the Political

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In the end, the recent developments underscore the need for fresh strategic thinking about nuclear weapons. The analytical tools developed in the first nuclear age are no longer helpful in understanding the role of nuclear weapons in the second age. Rethinking is required at three levels in devising more credible approaches. The first is to shed the alarmism that has come to dominate the discourse on nuclear weapons. Although nuclear weapons have dominated the international security discourse since the end of the Second World War, many have questioned the real impact of nuclear weapons on the evolution of contemporary international politics. John Mueller, for example, has argued that nuclear weapons have had a limited effect on modern history. He also points to the exaggeration that has enveloped the discussion of nuclear weapons in American policymaking: "Although nuclear weapons seem to have at best a quite limited substantive impact on actual historical events, they have had a tremendous influence on our agonies and obsessions, inspiring desperate rhetoric, extravagant theorising, wasteful expenditure, and frenetic diplomatic posturing."<sup>xi</sup> The hyperbole on nuclear weapons that dominated the discussion of US-Russian relations during the Cold War moved uncritically to the discussion of WMD proliferation and nuclear terrorism since the end of the Cold War.

Meanwhile, the experience of the last quarter of a century in the Middle East must serve as an important warning to the nuclear community. The post-Cold War obsession with the proliferation of WMD—often presented as the greatest danger to international security—had tragic consequences for the region and the West. The overestimation of the WMD threat was at the source of the costly intervention in Iraq in 2003—then President Barack Obama would later call it a “war of choice”—and an extended nuclear confrontation with Iran not only set the stage for a range of Western policies that brought the unipolar moment to a premature end, but also destabilised the region by upending the traditional political order and the military balance of power. The unintended political consequences from these policies are likely to remain for many decades to come.

The non-proliferation community has emerged as a cult that is self-referential, unwilling to see either the political nuances of nuclear politics in specific countries or regions. In emphasising the obtuse technical dimension of the problem and combining it with fear mongering, the non-proliferation community has often driven the political leaderships in the advanced countries into submission to the presumed imperatives of countering WMD proliferation. The sense of absolute threat from WMD has also given the space for political crusaders to pursue pet projects in the name of preventing the spread of nuclear weapons. In the 2003 invasion and occupation of Iraq, the motives of ousting the regime of Saddam Hussein and promotion of democracy in the Middle East had got convoluted with the goals of non-proliferation.

A particular feature of the Second Nuclear Age has been the fact that non-proliferation has been a special obsession of the American strategic community. Although most of the proliferation of WMD was taking place in Eurasia, most countries in the region were not as alarmed as Washington was about their neighbours acquiring nuclear weapons. This is probably rooted in the fact that Eurasian states have long lived with greater strategic ambiguity and cheek-by-jowl with their often-difficult neighbours. The United States, in contrast, has had the luxury of pursuing absolute security, owing to its separation from Eurasia by the Atlantic and Pacific Oceans and its paranoid political culture. This luxury, however, might be coming down as the non-proliferation misadventures dampen the temptations for political interventionism and the belief that America is duty-bound to right every presumed wrong in the world. Domestic political exhaustion with foreign interventions and new external constraints posed by assertive powers like Russia and China might compel the United States to take a more modest view of the threat from the spread of WMD and focus on developing practical and political approaches to addressing it.

## Endnotes

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- i. See for example, Fred Charles Ikle, "The Second Coming of the Nuclear Age," *Foreign Affairs* 75, No. 1 (January-February 1996): 119–128; Colin S. Gray, *The Second Nuclear Age* (London: Lynne Reinner, 1999); Paul Bracken, "The Second Nuclear Age," *Foreign Affairs* 79, No. 1, (January-February 2000): 146–156; Noah Feldman, "Islam, Terror and the Second Nuclear Age," *New York Times*, 29 October 2006.
- ii. Paul Bracken, "The Structure of the Second Nuclear Age," *Orbis* 47, No. 3 (2003): 399–413.
- iii. Paul Bracken, "The Bomb Returns for a Second Act," *FPRI ENotes* (Philadelphia: Foreign Policy Research Institute, November 2012), 1; <http://www.fpri.org/article/2012/11/the-bomb-returns-for-a-second-act/>.
- iv. Centre for Strategic and International Studies, *Nuclear Weapons and US-China Relations* (Washington D.C.: 2013); Alexi Arbatov, *Engaging China in Nuclear Arms Control* (Moscow: Carnegie Endowment for International Peace, 2014).
- v. Robert Litwak and Meg King, *Arms Control in Cyberspace?* (Washington D.C.: Wilson Centre, 2015); Richard Haass, "Foreword" to Gregory D. Koblentz, *Strategic Stability in the Nuclear Age* (Washington D.C.: Council on Foreign Relations, 2014), vii.
- vi. See Ashley Tellis, "The China-Pakistan Nuclear Deal: Separating Fact from Fiction," *Policy Outlook* (Washington D.C.: Carnegie Endowment for International Peace, 2010).
- vii. Mark Fitzpatrick, "Germany is now talking about nukes; Thanks, Trump," 29 August 2018; < <https://www.iiss.org/blogs/survival-blog/2018/08/germany-nukes-trump>> Ramesh Thakur, "Japan's nuclear options," *Japan Times*, 5 August, 2018, < <https://www.japantimes.co.jp/opinion/2018/08/05/commentary/japan-commentary/japans-nuclear-options/#.W-JoO4oo-hA>>.
- viii. Andrey Kortunov, "US Withdrawal from the INF Treaty and the end of the bilateral era," *Russia in Global Affairs*, 26 October 2018, < <http://eng.globalaffairs.ru/book/US-Withdrawal-From-the-INF-Treaty-and-the-End-of-the-Bilateral-Era-19799>>; "A farewell to arms control," *The Economist*, 5 May 2018.
- ix. Robert Einhorn, "Let's get realistic on North Korea and Iran," *Brookings*, 5 October 2018.
- x. John Mueller, *Nuclear Alarmism: From Hiroshima to Al Qaeda* (New York: Oxford University Press, 2009). See also his later piece, "Why nuclear weapons don't matter, but nuclear hysteria does," *Foreign Affairs*, November/December 2018.

# A Second Nuclear Age? A View From France

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**Bruno Tertrais**

It has become customary to speak of a so-called “Second Nuclear Age,” first introduced by leading British strategist Colin S. Gray in the mid-1990s. (US analyst Keith Payne explicitly credits Gray for forging the idea.<sup>1</sup>) However, there is no consensus on when such era began. Several key dates are possible, including distant ones. 1962 (the Cuban missile crisis) would be a good choice. Or perhaps 1964, when China detonated its first bomb: this is when the troubling equivalence between the status of permanent member of the United Nations Security Council and the status of nuclear-armed country began. But what about 1968, the coming into effect of the Nuclear Non-Proliferation Treaty (NPT) and the artificial “freezing” of the legal nuclear order? Even 1974, when India became the first country to openly dispute the monopoly of the Five? Other timeframes are possible. One could say, for instance, that a second nuclear age in fact began in the late 1980s, for instance with the signature of the first real disarmament treaty (the Washington Treaty of 1987 on Intermediate-Range Nuclear Forces, INF), even before the breakup of the Soviet Union.

This author would submit that the best possible way to define the Second Nuclear Age is to equate it with “a nuclear world no longer dominated by the central East-West competition.” The year 1998, which signaled the emergence of operational nuclear arsenals in South Asia, would be the best symbolic date.

## Characteristics of the Global Nuclear Order

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There are several possible ways to present today's nuclear world. A traditional legal distinction remains: countries having signed the NPT vs. the three others and the particular case of North Korea, which claimed its withdrawal in 2003.

Further, several geographical divisions are possible. The Global North lives under the nuclear umbrella, while the Global South is a vast collection of nuclear-weapon-free zones. Overall, the "West" has adopted policies of nuclear restraint: nuclear weapons are now mostly designed to counter nuclear threats; arsenals have been reduced; fissile materials are no longer produced; there are no more "hot" tests (involving a nuclear reaction); and financial difficulties are increasingly seen as constraints to modernise nuclear complexes and arsenals. In the "Rest," by contrast, arsenals are being expanded and diversified—sometimes rapidly—and nuclear weapons have a stronger political role, including for coercive signalling. Many non-Western countries use their nuclear weapons to make political statements. This dichotomy is less salient since the election of Donald Trump and the US 2018 Nuclear Posture Review.

One could also draw a figurative division between the "Old" nuclear world (Western countries and Russia) and the "New" nuclear world of Asia and the Middle East.

However, one defining feature overrides all others: it is hardly disputable that the centre of gravity of the nuclear world has shifted to Asia, as opposed to Europe during the Cold War.<sup>ii</sup> It is in the Asian region where arsenals are growing and where the most important risks of nuclear use exist. Although some of them pay lip service to the "abolition" movement launched in the United States in 2007, Asian nuclear countries are not interested in arms reductions at this point. In a sense, their position strikingly resembles the one they take on the question of greenhouse gas emissions: "How can you (the West) deny us the benefits of what has served you so well?"

Even though deterrence was never only a bilateral game during the First Nuclear Age, the second one undoubtedly features more complex deterrence calculations. China, for example, has to take care of the US, Russia and India. Meanwhile, Moscow takes into account both the US and China. India, for its part, has to look both at China and Pakistan. The United States has to take into account Russia, China and North Korea; and France and the United Kingdom focus on Russia but also look at Asia.

Europe is far from being denuclearised: American, British, French and Russian nuclear weapons are stationed there. The North Atlantic Treaty Organization

(NATO) remains a unique nuclear alliance. Its “nuclear exceptionalism” is a combination of four different levels of deterrence and reassurance: (1) extended deterrence (the US and UK commitments); (2) common nuclear planning; (3) US nuclear stationing in five European countries; and (4) nuclear sharing—i.e., the direct participation of those five European air forces in nuclear delivery missions (albeit at a reduced level for Turkey). Because of the growing perceived Russian threat, the debate on maintaining such arrangements is over.

With the exception of North Korea—which, for all intents and purposes, must now be treated as a problem of deterrence and no longer of proliferation—the non-proliferation efforts of the 1990s and 2000s have largely been a success story. Both the “demand” and the “offer” for military nuclear technology have been reduced. Norms have been reinforced, security guarantees have been reaffirmed; the transfer of nuclear weapon-related know-how is better restrained; and the development of nuclear complexes is better monitored.

Although about 40 percent of all nuclear-armed countries are outside the NPT, the Treaty, one of the most universal in force, remains “a” (rather than “the”) cornerstone of the nuclear non-proliferation regime. No new nuclear country has appeared on the plane since the first North Korea test in 2006. Nuclear-armed countries represent only about five percent of the total number of States. There is no nuclear country in South America, Africa, South-East Asia and the Pacific. The global South is legally and technically denuclearised.

Nevertheless, the normative nuclear framework established between 1968 and 1998 is fragile. Some nuclear-related treaties and unilateral commitments have been violated, notably by Russia. Western military interventions—whatever one thinks of their legitimacy and efficacy—may encourage proliferation. The NPT remains a permissive instrument, allowing members to get close to the nuclear threshold (by producing fissile material) without violating it, as well as a fragile one (a second withdrawal from the NPT, after that of North Korea, could trigger a chain reaction of withdrawals). The International Atomic Energy Agency’s (IAEA) Additional Protocol is not in force in several key countries. The so-called “Khan network” has put key technologies on the market, such as centrifuge plans and weapons plans. The advent of 3D printing may facilitate the building of small-scale hidden facilities, especially since uranium enrichment has once again become, thanks to Iran, a symbol of national sovereignty. Iran has been recognised as a legal “latent” nuclear state in the July 2015 agreement, which the United States has now left. The Comprehensive Test Ban Treaty (CTBT) is not in force, and the drafting of a Fissile Material Cut-off Treaty (FMCT) has not begun.

## Weapons and Arsenals of the Second Nuclear Age

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The global nuclear stockpile has been considerably reduced. It peaked in the mid-1980s, in particular due to the enormous growth of the Soviet theatre nuclear weapons arsenal from the 1950s onward. Since then, the stockpile been reduced by about 75 percent to reach 10,000.

Nuclear weapons are, overall, under control. Nuclear-armed countries have set up or improved their management procedures and security features. There is no documented loss of a nuclear weapon.

There are two categories of nuclear arsenals, with a gap between the two. First-tier arsenals include those of Russia and the United States. The second tier includes all others except North Korea. Those in the first tier have around 8,000 warheads each, including about 2,000 strategic operational warheads each. Those in the second tier have a few hundred warheads.

From a strictly numerical point of view, there is, in fact, a slow and gradual equalisation of nuclear arsenals. There is still an order of magnitude of difference between the two tiers. In the long run, there could be a gradual equalisation of nuclear arsenals. Yet, the world is far from being there and it will take a long time. In the meantime, equalisation will happen within the second tier.

Arms races—or rather, action-reaction dynamics—still exist, but are different from those of the past. Nuclear equality or even nuclear superiority still matters. Some countries engage in counterforce targeting, thereby connecting the evolution of their arsenal to that of another country. Russia wants to be perceived as being the equal of the US. Japan does not want to see China becoming the nuclear equal of the United States. India and Pakistan do not want to be seen as being inferior to the other. At the same time, China and the United Kingdom compete for the title of the smallest nuclear arsenal of the Five.

Nuclear arsenals are now largely associated with ballistic missiles. In most nuclear-capable countries, the role of aviation is now secondary or complementary. But there is a growing role for cruise missiles, in particular in light of the global interest in missile defence.

Most nuclear countries continue to have or seek a diversified arsenal. Very few countries have given up an entire leg of their arsenals; only France and the United Kingdom have, for different reasons.<sup>iii</sup> Continuous at sea deterrence (CASD) based on SSBNs (Ship-Submersible-Ballistic-Nuclear) continues to be a paradigm because of the perceived survivability imperative, despite new fears—whether

justified or not—about future vulnerabilities of submarines (for instance, through the hypothetical deployment of swarms of interconnected underwater buoys and drones). A few years ago, Russia resumed its SSBN patrols, and now seeks to come back to CASD. After having attempted to develop survivable land forces (through concealment in the case of China and Pakistan), all Asian nuclear countries now actively seek a sea-based deterrent.

The modernisation of nuclear arsenals focuses much more now on weapons systems than on warheads. The modernisation of weapons is constrained by the *de facto* norm on “no hot nuclear tests.” Unless in cases where assistance is given by state or non-state foreign actors, it is now difficult for nuclear countries to develop entirely new types of safe and efficient nuclear weapons designs. Outside the Western world, specifically in Russia and in China, Multiple Independently-targeted Reentry Vehicles (MIRV) are making a comeback.

Strategic missile defence is now a reality: it is operational in the US, in Israel and in Europe. However, it has not displaced nuclear deterrence: it is widely seen as a complement rather than a substitute to it. The same can be said for long-range precision strike, which have inherent limitations: only nuclear weapons can credibly threaten hardened or deeply buried targets.

These two developments have complicated the arms control process, which is now stalled and may be reversed as the United States has announced its intention to leave the Intermediary Range Nuclear Forces Treaty, citing, *inter alia*, Russian violations. Even the extension of the bilateral New START agreement beyond 2021 is now in doubt. As per the abolition movement launched in the late 2000s in the US, it is no longer on the agenda. The humanitarian movement that followed it is in limbo. A treaty banning nuclear weapons is now open for signature, but no nuclear power or country covered by a nuclear umbrella is interested.

## Policies and Doctrines in the Second Nuclear Age

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Any discussion on the role of nuclear weapons today must emphasise an obvious but critically important point: there has been no use of nuclear weapons since 1945. Many Cold War experts and statesmen of the 1960s or the 1970s would marvel at this fact, as Prof. Thomas Schelling did in his Nobel Peace Prize acceptance speech of 2005. One can argue that each year that passes reinforces it. All nuclear countries claim to have a doctrine of deterrence, a tradition firmly entrenched now. Indeed, one of the most important and reassuring features of the global doctrinal landscape is that all nuclear countries—even North Korea—profess to have adopted deterrence as an overarching concept. This was not self-

evident as recently as 30 years ago. While this is no guarantee against a failure of deterrence, the tradition of non-use seems to be firmly entrenched, as well as, increasingly, the idea that any nuclear weapons use would be of a strategic nature. This principle was first proposed by France in the mid-1990s and has been adopted by other countries. Even Pakistan does not speak of tactical use (though it does mention “tactical” nuclear weapons).

Even though the concept of nuclear deterrence by denial retains credibility among some nuclear possessors—Russia and Pakistan, for instance—the idea of using nuclear weapons for purely war-fighting purposes seems to have disappeared: even Moscow and Islamabad claim that their weapons are for deterrence purposes and not to be used for waging war.<sup>iv</sup> Most nuclear countries claim to have a posture of “minimum deterrence,” though the expression may have varied meanings in different countries. Conversely, the nuclear threshold has not been lowered. While it is commonplace to suggest that the scope of Western and perhaps other doctrines have tended, over the past 30 years, to enlarge to what used to be called “new threats” (i.e. chemical and biological weapons, or State-based nuclear terrorism, or perhaps cyber threats), there is no evidence that the nuclear threshold has been lowered in such countries. The main reason why the chemical and biological weapon threat has been emphasised in Western countries over the past is that they themselves have given up chemical and biological weapons. One country raises questions: India is the only nuclear State which has openly and officially stated that the adversary would face nuclear retaliation in case of a strike against its forces. This may appear to some as a low nuclear threshold.

Liberal democracies consider that international law is a constraint for nuclear planning and concepts. France and India have tied their respective deterrence policies to Article 51 of the United Nations Charter. The United States and the United Kingdom have always been keen to enshrine the principle of proportionality in their nuclear doctrines.

Targeting policies have changed due to the growing precision of weapons systems. It is believed that Western countries do not target populations per se, for instance. While things are less clear for other countries, the general long-term trend is towards a reduction in yield as weapons systems become more accurate.

All nuclear countries have restrained their nuclear doctrines one way or the other, to varying degrees. This includes Russia, despite its sometimes provocative nuclear stance. They do so for reasons of non-proliferation or credibility. China has the most restrictive declaratory doctrine, with an absolute no-first-use policy. Pakistan and France may have the least restrictive doctrines: the former for mostly strategic reasons, the latter for mostly philosophical reasons. At the same time, most nuclear countries appear to desire some measure of flexibility in concept

and planning. Not much is said in that regard by most countries. (Again, India is an interesting case: it has a detailed and official nuclear doctrine, but does not declare any flexibility in concept and planning. Thus, on paper, having the lowest nuclear threshold. But would India inflict massive retaliation on its neighbour if Islamabad destroyed, say, a tank company on Pakistani soil?)

Formal extended nuclear deterrence remains an American privilege and priority. It is a privilege in the sense that the US is the only nuclear-armed country which has a clear and open extended nuclear deterrence policy vis-à-vis allies on several continents, in Europe, in Asia and in the Pacific region. (The UK assigns weapons to NATO.) It is a priority in the sense that the potential threat against protected allies is seen as growing and that extended deterrence is seen as a guarantee against the temptation of nuclear proliferation, despite a few provocative statements by Donald Trump.

## Managing the Second Nuclear Age

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Nuclear weapons are here to stay. All nuclear-armed countries have signalled their intentions to invest in continued modernisation of their arsenals (although the nuclear future of the UK remains less certain, all things being equal, than that of the other nuclear powers). There are today few prospects for nuclear disarmament and arms control treaties.

Managing the second nuclear age will be more about deterrence than about non-proliferation and more about avoiding deliberate use than about preventing accidental or unauthorised nuclear use. It will probably be more stable from a proliferation standpoint, and less stable from a deterrence standpoint.

Multi-dimensional escalation models are easy to imagine. Apart from Israel, all nuclear-armed actors of the second nuclear age are strategically interconnected.<sup>4</sup> Deterrence as a concept is firmly entrenched, as is the tradition of non-use. But nuclear assertiveness and military provocations under the nuclear shadow may lead to a breaking of the taboo. To varying degrees, Russia, Pakistan, China and North Korea play the nuclear card dangerously through tests, exercises, statements. The Second Nuclear Age is one of “nuclear nationalism.” However, provocations by nuclear powers are never innocuous. In addition, several countries maintain deliberate ambiguity on the composition of their arsenals, thus blurring the conventional/nuclear threshold, with possible costs in a crisis – adding a new dimension to the fog of war. Overall, the stability/instability paradox seems to be working. But any limited crisis involving two nuclear actors intrinsically carries the risk of inadvertent escalation. Today, the likeliest scenarios of nuclear use are those of deliberate limited strikes by Pakistan or by North Korea.

A new dimension of the Second Nuclear Age is the proliferation of SSBNs and other nuclear-capable maritime platforms in Asia. It remains to be seen whether SSBNs will be at the core of Asian deterrence policies or whether they will be mostly virtual or symbolic deterrence assets. Would the operationalisation of SSBNs in Asia make the nuclear world more stable or less? It depends on a number of factors. First, there might be a transition period during which only one (or two, but not all) Asian nuclear actor has a secure second-strike capability but not its adversary, making their face-off less stable. Second, some countries erring on the side of “always” instead of “never” may be tempted to give the ability to a submarine to fire nuclear weapons on its own, potentially creating new risks.<sup>vi</sup> For the operationalisation of SSBNs would mean that the posture of de-mating, reportedly adopted by several Asian nuclear actors, would be over, since it is impossible to maintain such postures with SSBNs on patrol. Third, how invulnerable will new SSBNs be? This will depend on technical, operational (deployment patterns and postures) and strategic (the nature of the attack submarine threat) factors.

By contrast, the British and the French national deterrents have, for years, fully taken into account the possibility of an Asian strategic contingency. They now both have ballistic missiles that can reach Asia (a recent development for Paris, with the coming into service of the M51.2 missile in 2016). Several scenarios have been developed in Europe, with the main one being where an Asian nuclear power attempts to dissuade Paris or London to support its friends and allies in the region during an open military crisis; the ability to strike targets in Asia would then help to counter such a move, thereby ensuring that the UK and France (they would probably be both involved if only politically) maintained their freedom of action.

This means, on paper, that not only China, India, Pakistan and North Korea, as well as Russia and the United States, but also France and the United Kingdom—a total of eight nuclear powers—could technically be involved one way or another in an Asian nuclear crisis.

## Going Forward

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**W**hat would happen after the nuclear taboo is broken is anybody’s guess. It would, however, probably depend on the circumstances. Was it a demonstration shot with few, if any, casualties or a strike involving massive civilian casualties? Was it a one-shot event, or was it followed by escalation? Did the country resorting to nuclear weapons achieve its objectives? Was the P5 in a position to be united in its reaction? Did the international community remain passive, or did it actively intervene to quench the nuclear fire? When one looks at

possible scenarios, there are endless variations. Suffice to say that the first nuclear use since Nagasaki could lead to rapid nuclear disarmament or, on the contrary, to a nuclear free-for-all.

It was hard enough to manage a mostly bilateral nuclear world: there are no good, practical ways to manage a nine-country nuclear world with nine different operational nuclear postures.

Nuclear no-first-use policies are often seen as a quick and cheap pathway to nuclear restraint. But even assuming all nuclear countries would be ready to adopt them without diminishing their security (which most do not believe is feasible today), and even if all of them did in good faith, it is hard to see how a global no-first-use would stabilise anything. It takes only a few seconds to reverse such a policy. During a crisis, anticipations of reversal might aggravate, rather than dampen, the risks of escalation.

Banning all land-based nuclear-tipped missiles is an excellent idea on paper: its result would be to slow down reaction times in a crisis, thus lessening the chances of rapid nuclear escalation. But what is the probability that six nuclear countries—Israel, India, North Korea, Pakistan, Russia and the United States would be ready to give them up—simultaneously?

Without creating a new and artificial division between good/bad nuclear behaviour and good/bad nuclear countries, it is conceivable that like-minded countries exchange and adopt best practices to ensure that we remain in a stable, use-free nuclear world. That would include, for instance, a modicum of transparency on arsenals and doctrines; tight political controls on the ability to use nuclear weapons and on military-industrial complexes; strict definitions of “minimum deterrence” or “sufficiency”; assured second-strike capabilities (whether on land or at sea); eschewing any “tactical” label for nuclear weapons; and making it clear that nuclear weapons could only be used in the gravest of circumstances, threatening the most vital interests of their possessors. A good place to start would be to challenge each state endowed with nuclear weapons to state publicly and explicitly that the only possible function of nuclear weapons is deterrence and that their use would fundamentally have a political purpose. Sounds obvious? Perhaps not for everyone in every nuclear capital.

## Endnotes

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- i. Keith B. Payne, *The Second Nuclear Age* (Lexington: University Press of Kentucky, 1996), 8.
- ii. In a sense, given Russia's new nuclear assertiveness, India finds itself at the very centre of the new nuclear world.
- iii. In 1993, right after the end of the Cold War, the United Kingdom decided that replacing its ageing WE-177 free-fall bombs with a cruise missile was not worth the cost, especially since its (US) Trident-2 SLBMs were more accurate than the previous Trident-1. In 1996, France, for its part, thought that the rationale for maintaining and modernising its land-based S3D IRBMs had largely disappeared with the end of the immediate, massive Soviet nuclear threat.
- iv. 'Deterrence by denial' means here targeting adverse armed forces to prevent (or complicate) conventional operations, as did the Atlantic Alliance from the late 1950s until the 1980s.
- v. The novels of British author Humphrey Hawksley (*Dragonfire, The Third World War*) imagine such multilateral escalation scenarios, with a focus on Asia.
- vi. « Always » refers to the need to ensure that forces would « always » be launched if a legitimate launch order was given ; « never » refers to the symmetrical need to ensure that they could « never » be launched without a legitimate launch order.

# Relevant Cold War Experience?

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Desmond Bowen

## Introduction

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This essay addresses issues relevant to the second nuclear age. It is written from a Western standpoint and draws on the experience of the Cold War, which tends to be dismissed as lacking in transferability to other regions. It does not aim to be comprehensive and does not deal with current US-Russia-China relationships. The focus is primarily on Asia and, more specifically, on South Asia. The author recognises the limitations involved in this narrow focus, and the possible consequences of multiple deterrent relationships in and beyond Asia. It was, moreover, written before three major developments in the nuclear field: the agreement of a treaty on the prohibition of nuclear weapons; the US withdrawal from the Joint Comprehensive Plan of Action (JCPOA or the Iran nuclear deal); and the summit dialogue between the US and the DPRK.

## The First Nuclear Age

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It is tempting to judge the first nuclear age by the stability and restraint achieved at the end of the Cold War, and indeed by the subsequent large reductions in nuclear holdings by the two superpowers (the US and USSR, then Russia) of the 1990s.<sup>1</sup> But it makes more sense to take a longer perspective starting soon after the use of nuclear weapons on Japan in the closing moments of the Second World War. The very early years were characterised by intense, albeit undeclared, nuclear competition and the technology-led expansion of capability. Crises abounded in the ideologically driven world of the 1950s and 1960s, and the latent threat of resort to nuclear weapons was never too far

away. Most obviously, the Cuban missile crisis in 1962 revolved around nuclear issues, directly affecting concerns of national security. The Cold War did represent a titanic ideological struggle for superiority and, arguably, the peace between the major powers was kept by the deterrent effect of the nuclear weapons on both sides. (That does not of course exclude the numerous smaller and proxy wars waged in the margins with considerable destructive results.) It is instructive to consider the essential ingredients for the establishment of what turned into a long period of Cold War but with nuclear peace.

## Ingredients for Stability

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Any notion that a pre-emptive nuclear strike could disarm or completely disable the opponent made no sense once there was a reasonable likelihood of a retaliatory second strike in response. That could be either because of the numbers and dispersal of weapons or because of their invulnerability through deployment or inaccessibility. So the acquisition of an assured second strike capability, first by the US and then by the USSR, was a strong stabilising factor. That did not preclude the possibility that a surprise conventional and/or nuclear attack could be undertaken at such speed as to overwhelm the decision-making processes of the opponent's leadership and render the risk of a nuclear response close to negligible. As late as 1983, the NATO high-level exercise known as Able Archer<sup>ii</sup> was thought by the Soviet military and political hierarchy to be the disguise for a surprise nuclear attack, to the point where Soviet troops were put on standby and senior personnel moved into operational bunkers. By the early 1980s, both sides had changed their conventional military doctrines to become more 'manoeuvrist', with speed and surprise integral to their putative success. However, they recognised by the late 1980s that the elimination of surprise attack would benefit both of them; this breathed life into moribund conventional arms control talks amongst the NATO and Warsaw Pact members through the closure of the Mutual and Balanced Force Reduction (MBFR) talks and the creation of a new forum to negotiate the Conventional Forces in Europe (CFE) treaty of 1990. These two elements, an assured second strike and the virtual elimination of surprise attack, were the major contributors to the stability and security that existed at the end of the Cold War.

It would be wrong to think, however, that technical calculations of the level of assurance attributable to a second strike capability or the military assessment of the likely effectiveness of a massive surprise attack alone determined policy. Political, not military, leadership was at the core of decision-making on both sides of the Cold War (which was clear in the deliberations leading to the resolution of the

Cuban missile crisis). Despite the dangers, it took time for the merits of instability to be perceived as being outweighed by the benefits of stability. The Helsinki Final Act of 1975 was the first major step in European political detente, after the success of US/USSR agreement of 1972 on the limitation of nuclear holdings in SALT1.<sup>iii</sup> Key political agreements of the Helsinki Final Act were that state borders were inviolable and that the territorial integrity of states would be respected. Confidence-building in military matters was also introduced, covering advance notifications of large troop movements and exercises, which started a process leading to security building and, eventually, to limitations. While the wisdom of the political leadership in the closing phases of the Cold War may be heralded, it must also be recognised that the political actions in recent years have reversed the trend (and undermined the agreements) to the extent that instability now predominates in relations between Russia and NATO. The Russia-Georgia war of 2008, Russia's annexation of Crimea and the destabilisation of Ukraine since 2014 have been in flagrant contravention of the norms and conventions that fostered stability in Europe in the last quarter of the 20th century. Politics is thus at the heart of the making or unmaking of stability, security and peace.

## The International Framework

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It would be perverse to focus only on the interactions of the superpowers. The most significant legacy of that era is the framework of global nuclear security negotiated painstakingly over many decades: the NPT of 1968 and the CTBT of 1996 being the central achievements in constraining nuclear proliferation. While the CTBT may not have entered into force, its precepts are largely adhered to through moratoriums, with the notable exception of North Korea (the DPRK); and the NPT with its indefinite extension in 1995 has almost universal adherence, although its last review conference failed to reach a consensus position. Other examples include the series of nuclear security summits instigated in 2010 by then US President Barack Obama to promote control over all nuclear material, and the passage of UNSCR 1540 in 2004 to prohibit the spread of nuclear capability to non-state actors, as well as the introduction from 1997 of the IAEA additional protocol to enhance the nuclear safeguarding arrangements. The importance of countering nuclear proliferation has been a driving force in international politics, as evidenced by the sustained effort culminating in the Joint Comprehensive Plan of Action (JCPOA) of 2015 to constrain Iran's progress from the threshold to the possession of nuclear weapons. These international constructs have happily given the lie to US President John F. Kennedy's concern about rapid proliferation, to the effect that by the end of his presidential term in 1964, as many as 20 nations would have "a nuclear capacity."<sup>iv</sup>

## Policy Considerations

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This rehearsal of salient factors in the development of nuclear security internationally and in the North Atlantic region may seem remote from the experience of Asia and particularly the states now possessing nuclear weapons in South Asia. There is no fundamental ideological divide in play, though there are clear political differences; the states act individually and not as part of a wider alliance, although the US extended deterrence for Japan and South Korea has some similarities; the holdings of nuclear weapons are more modest; and India, Pakistan and now the DPRK are not part of the NPT. Global security interactions are no longer intrinsically bipolar, and the nuclear deterrent postures respond to more than one potential threat in most cases. Furthermore, territorial and maritime disputes in the Asia-Pacific region show no sign of resolution. And technological advances are introducing new complexity into security calculations. There is also the concern, since the mass casualty attacks in the US of 9/11 in 2001, about the ambitions of transnational terrorist groups to acquire nuclear material. The glib conclusion is that the second nuclear age is no less dangerous than that which preceded it, and may be a lot more complicated to address; it certainly requires as much thought and effort to ensure that the taboo against the use of nuclear weapons remains intact, even as the possession of nuclear arms delivers its deterrent effect. Policy priorities may be a helpful place to start.

The first policy issue is to ensure recognition of the simply appalling effects of which nuclear weapons are capable. The nuclear explosions in 1945 on two Japanese cities and the destruction they wrought are a small indication of the massive devastation possible with modern thermo-nuclear weapons. Although smaller-yield weapons with more restricted effect can be and *are* made, there should be no doubt that any use of nuclear weapons would almost inevitably result in response and escalation. Political and military leaders must understand that breaking the taboo would be akin to opening a nuclear Pandora's Box. Escalation is neither predictable nor stable. The "humanitarian initiative" launched in the wake of the 2010 NPT review conference by a number of states and promoted forcefully by certain states and anti-nuclear NGOs, has the merit of reminding leaders of the likely catastrophic effects of nuclear war and of the inability of even the most developed states to respond adequately to the ensuing humanitarian need, locally and globally. This point may seem self-evident, but the problem lies in the temptation to think that some nuclear weapons may be used tactically and with impunity, as a substitute for conventional weaponry. Since the end of the Cold War, the West has come to the entrenched view that the threat of nuclear use should only be considered in the context of vital national interests, with the clear purpose of nuclear weapons, by their very existence, being to prevent or stop war, as set

out in US and NATO policy documents.<sup>v</sup> The effect has been to reduce the salience of nuclear weapons in the West's security policy. That sets the bar very high, but it is proper recognition of the potential horror of nuclear war. It is far from clear that this appreciation is shared by all the more recently nuclear capable states. Henry Kissinger has written in the context of proliferation: "The spread of these weapons into hands not restrained by the historical and political considerations of the major states augurs a world of devastation and human loss without precedent even in our age of genocidal killings."<sup>vi</sup>

The second key policy issue is that for deterrence to be effective it must also be credible. That credibility has to be lodged in the mind of the would-be adversary. Credibility is important because that is what modifies or adjusts the behaviour of a state that is subject to an adversary's deterrence. Quite early in the Cold War, the trip-wire deterrent policy of NATO, with the threat of massive response to any encroachment, came to be viewed quite rationally by its own policymakers as lacking in credibility, with the result that the alliance moved after long internal negotiation to a policy of flexible response.<sup>vii</sup> The respective deterrent policies of India and Pakistan are reasonably well defined, with the former's espousing the principle of deterrence by punishment and the latter's involving a full spectrum approach that encompasses deterrence both by denial and by punishment. There is a serious question whether either side believes in the other's doctrine.<sup>viii</sup> Lack of credibility in or respect for the doctrine of a potential adversary makes for instability, with the possibility of brinkmanship and even pre-emption. It is worth noting that credibility depends not just on heeding the words of a doctrine enunciated by a state's leadership and judging its resolve, but on analysis of the decision-making process for nuclear release, the resilience of the command and control system, and the physical capability of the forces to deliver the intended effect.

The third significant policy issue is the political context of relations between the parties. Stability comes not only from a sound mix of conventional and nuclear forces, which send a powerful deterrent message, an assured second strike capability and clear political determination. That could be the basis for a peaceful but armed confrontation in conditions of tension, with the risk of deterioration into conflict. Stability has a large political component.<sup>ix</sup> As indicated above, the latter part of the Cold War saw the two sides deciding to reduce the risks of war through the negotiation of an agenda of multilateral confidence and (eventually) security building measures; that did not mean that the political competition and animosity had been eradicated. Political will had to be exercised by the parties involved to achieve a position of predictability based on a degree of mutual trust. In the absence of such will, trust is unlikely to be brought into existence. Such absence is seen in the words and deeds of the DPRK, and it is difficult to see what could induce

a change of heart short of strong political coercion exercised by an ally. In the case of India and Pakistan, the issue at the heart of their latent animosity is the status of Kashmir. That political conundrum shows no sign of resolution. In other parts of the world, disputes have achieved a ‘frozen’ status, whereby it has been possible for bilateral security relations to be maintained adequately even as the underlying fragility remains. It is noteworthy, for example, that the contested border between China and India is managed bilaterally with relatively little upset through regular dialogue on India-China border issues.<sup>x</sup>

A comment on the impact of technical innovation is appropriate here. Technological advances are a formidable complication for policymakers. They have, in the past, contributed to arms races but have also provided the catalyst for arms control initiatives. Nor does new technology come cheap: the costs in human and financial capital expended range from the onerous to the frankly unaffordable. Placing multiple warheads on a missile, introducing ballistic missile defence systems, or devising the means for cyber intervention clearly bear on the security of states. The introduction of sea-based nuclear systems in South Asia (which implies the mating of warheads and missiles) also introduces new risk factors as against those pertaining to land-based systems. The question is whether technology should guide the future path of deterrence or whether policy should be in the lead to determine the genuinely minimal requirements of national security.

## ‘Second Nuclear Age’ Concerns

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With these policy priorities in mind, derived from a different arena but with universal application, a brief survey of the Asia-Pacific region gives rise to concern. The horror of nuclear use on Japan, the “lethal enormity” in the words of Sir Michael Quinlan,<sup>xi</sup> is well documented. Japan is at the forefront of those who would like to see the elimination of all nuclear weapons but, at the same time, is clear about its security needs, which in part are provided by the US nuclear umbrella. China acquired a limited nuclear capability in the early 1960s and adopted a ‘no first use’ policy, to which it has adhered ever since. Its doctrine is opaque and its capability is expanding, but there is no indication of a reckless attitude to potential nuclear use. The big question is the extent to which China intends to be a status quo power in respect of the extant nuclear architecture. The DPRK is another kettle of fish, operating in defiance of UN resolutions, both on nuclear matters and missile development, and threatening its neighbours and the US while undertaking explosive and missile tests without heed. It is indecipherable where the threshold (for use) lies in the event of a crisis, just as is the balance between regime preservation and wilful mass destruction. India is another state

to have adopted a no-first-use policy, with a modest arsenal but a range of delivery systems that will include ballistic missile firing submarines. Its pronouncements indicate that its strategic rival is China<sup>xii</sup> and that drives its nuclear requirements, not its smaller neighbour, Pakistan. In contradistinction, there is no doubt that Pakistan's nuclear ambitions derive from its bilateral rivalry with India, fuelled in the first place by the 1971 war,<sup>xiii</sup> which saw the transformation of East Pakistan into Bangladesh. Its armoury comprises both very short- and long-range capability. The Asia-Pacific region does not lend itself to a unified framework, other than in the context of a global approach. Even that statement needs qualification since India and Pakistan have chosen to stand outside the NPT. The DPRK was of course an NPT member but renounced its adherence to pursue its maverick nuclear plans.<sup>xiv</sup> The Vancouver to Vladivostok sweep of the Organisation for Security and Cooperation in Europe (OSCE), which started life with the Helsinki Final Act and whose sway is much diminished since Russia's trampling of the rule of law the OSCE agreements represent, has no counterpart in this region.

There are strong grounds for applying focus to the DPRK's nuclear programme, and that is manifest in the UN Security Council's repeated resolutions, including its unanimous and powerful UNSCR 2270 of 2016 on further sanctions, and in the now dormant six-party talks, both of which have failed so far to modify the DPRK's behaviour. The six-party talks seemed to offer possibilities but ultimately the sole arbiter may be China if it chooses so to act. The risks associated with this crisis are acute and continue to unfold, and they should not be underestimated. The political pressure in Japan and South Korea to provide themselves with their own nuclear deterrent rather than be dependent on the US cannot be discounted.

## South Asia

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The South Asian nuclear nexus has little of the wayward drama of the DPRK case since the twin tests of 1998. Nevertheless, the confrontation in 2001/2 after the terrorist attack on the Indian Parliament looked very ugly. The risk of deterioration from confrontation to nuclear exchange exercised the leadership of the US and others considerably. Following extended mobilisation activity, much international pressure was applied to both sides and the crisis was contained. But it illustrated unpredictability and instability, which have not been remedied since. Major terrorist events on Indian soil—in Mumbai in 2008 and Pathankot in 2016—have been managed with remarkable restraint on the part of India. Some argue that the reason is the deterrent effect of Pakistan's nuclear armoury, particularly the availability of short-range, low-yield missiles geared to dealing with a swift land incursion intended as punishment. That implies that Indian options for exacting

conventional punishment are confined to that course of action, which is unlikely to be the case. The range of Indian options for a response, if any, is likely to be wide (and not merely military) and subject to their selection as to both time and place.

The major factors that give rise to concern are the asymmetry of nuclear capability, which tends to encourage arms-racing despite the repetition of the mantra of minimalism; the uncertain credibility of the deterrent doctrine of either side for the other; the possibility, based on historical precedent, of a major terrorist outrage in India linked back to a Pakistani state organism; the populist political pressures that could be unleashed at a time of rising tension; and the intermittent political exchanges, which are not sufficiently institutionalised to support a stable relationship. Some grounds for optimism may be found in the centralised command and control arrangements on both sides, in the de-mated warheads, in the holding under central control (as against the forward deployment) of nuclear weapons, and the restraint and strategic patience of great civilisations. Still, this does not add up to stability.

What is clear is that for decades, bilateral political initiatives have been taken to improve the nuclear and security relationship. The results should not be decried: some of the CBMs have endured, such as those relating to the notification of civil nuclear facilities and the advance notice in respect of ballistic missile tests. Hotlines and expert meetings between the military and other officials have been established. The comprehensive (formerly, the composite) dialogue has tried to address a range of difficult security and economic issues, but with frequent interruptions on political grounds (and suspended since April 2016). The Non-Nuclear Aggression Agreement (NNA) treaty of 1988 and the Lahore Declaration of 1999 stand testimony to some of this progress. Nevertheless, the underlying risk of war is still present. Policy proposals for managing that risk could be drawn from a range of options covered under three categories detailed below.

## Possible Remedies

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The first category covers declaratory policy that is derived from doctrine. In the days of the Cold War, NATO never gave credence to the USSR's no-first-use policy on the grounds that there was evidence of an aggressive posture and a broad armoury of nuclear weapons to fulfil it. But where policy and the physical capability to support it coincide, declarations of this sort should earn credibility. The reduced salience of nuclear weapons in the West rests on the commitment that nuclear weapons are for the defence of vital national interests; and that is matched by the near-elimination of what are called sub-strategic weapons, once known as tactical weapons. Any potential use is now considered to be of

strategic significance. It would be a step forward for the South Asian states to commit to doctrines that eschewed the use of nuclear weapons for circumstances other than the defence of vital national interests. Deterrence would rest, as it does in part now, on the threat of nuclear retaliation, but the notion of a nuclear war-fighting capability for tactical, defensive purposes would be eliminated; the definition of vital national interests would remain obscure since ambiguity is part of deterrence but the use or threat of use of any nuclear weapon to deal with a limited emergency (which did not pose an existential threat) would not be countenanced. Credibility in deterrence would be enhanced and the danger of misunderstanding or miscalculation much diminished. The implication would be that the development and holding of low-yield, short-range weapons for tactical effect would be unnecessary.

A bilateral discussion about doctrine is not likely to come about out of the blue. But it might come about in the context of a second category for consideration, which is the broader international dimension. Neither India nor Pakistan is a member of the NPT: both occupy positions outside the established nuclear order. They are a conundrum for the rest of the world: how to integrate or accommodate them without encouraging others to follow suit? The US-India civil nuclear deal of 2008 and the associated bid for India to become party to the Nuclear Suppliers Group (NSG) are viewed in Pakistan as discriminatory. There is a case to be made for involving Pakistan in the rigour of the broad counter proliferation network after their overcoming of the wild aberration of A.Q. Khan's proliferation spree.<sup>xv</sup> Another part of the international jigsaw is the attitude of the two states to the CTBT, on which Pakistan took an initiative in August 2016 for joint action. Other issues of mutual interest arise in respect of the physical safeguarding of all types of nuclear material. The 2007 agreement to deal with the risk from accidents relating to nuclear weapons is a good example of reciprocal benefit. The existing international agenda thus provides opportunities for bilateral cooperation and reassurance if there were the mutual will to do so. In this context, it is useful to ask the question whether there would be advantage in a forum bigger than just the two sovereign states in tandem. Such a suggestion is bound to be offensive to one, if not both, of the protagonists, but that does not make it wrong. The US and China have interests at stake and deep bilateral ties in the region; four power talks could help bring results that are unlikely to be achieved bilaterally on the past record. Non-proliferation priorities could also be served by such an approach. The knotty problem of Iran's nuclear ambitions was addressed not by a bilateral negotiation but through the wider involvement of the P5plus1 (the permanent members of the UN Security Council and Germany).

A third category involves a renewed focus on confidence-building measures, which have a variety of benefits. The first is increased transparency and therefore

predictability. Notifications of specified military holdings are a good starting point but observation by invitation and then mandatory verification do a lot more to boost confidence, or else reveal cheating. A second benefit comes from the mere fact of discussion, contact and engagement, which can have the effect of changing the image and symbolism of the adversary into something more human and less demonised. This should also contribute to the generation of trust between the parties. The third is the involvement of the parties in a process that unfolds over time and, if sustained successfully, should lead first to confidence and then to security building. Since nuclear matters will always be acutely sensitive, it would make sense to place early emphasis on conventional measures. The object should be to avoid surprises and miscalculations in the normal course of the military routine. It should also provide scope for discussions about the impact on security of new technology and new equipment acquisitions, as well as novel operational concepts. An approach such as this requires not only a political decision at the top level, but the willing engagement by the relevant ministries and the military. It can be a long and laborious business. As indicated elsewhere in this text, the starting point has to be that stability, not instability, is the desired goal.

These three possible remedial avenues are challenging and contentious. But they offer an opportunity to reinvigorate and redirect a security relationship between nuclear armed neighbours that looks precarious and therefore fraught with danger. There is little prospect of a new overarching framework being brought into being to supplant the international undertakings now in existence. The NPT is essential to that framework, even as it is called into question on the basis of its discriminatory regime of nuclear weapon haves and have-nots. The difficult quest for a world without nuclear weapons will and should continue. For South Asia, there is a double challenge: managing the risks of an uneasy bilateral nuclear relationship and integrating themselves as responsible states into an international framework from which they are at best semi-detached. The onus will rest with India and Pakistan to resolve these issues together, and to succeed, the political leadership of both parties will need sustained and determined commitment and statesmanship.

## Endnotes

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- i. Between 1991 and 2000, US nuclear stockpile holdings reduced by 54 percent, from 19,500 in 1991 to 10,500 in 2000; Russian nuclear stockpile holdings reduced by 57 percent, from 35,000 in 1991 to 20,000 in 2000. For further information see: R. S. Norris and W. M. Arkin, "Global nuclear stockpiles, 1945–2000," *Bulletin of the Atomic Scientists* 56, no. 2 (Mar./Apr. 2000): 79, <http://www.tandfonline.com/doi/pdf/10.1080/00963402.2000.11456948?needAccess=true>.
- ii. For further information on the Able Archer Exercise see: Gordon S. Barrass, *The Great Cold War: A Journey Through the Hall of Mirrors* (Stanford: Stanford University Press, 2009), 298–300; USA President's Foreign Intelligence Advisory Board (PFIAB), *The Soviet "War Scare"* (Washington D.C.: The George Washington University National Security Archive, 1990 (declassified 2015)), <http://nsarchive.gwu.edu/nukevault/ebb533-The-Able-Archer-War-Scare-Declassified-PFIAB-Report-Released/2012-0238-MR.pdf>.
- iii. It should be recalled that the conclusion of SALT1 was dependent on the agreement of the Anti-Ballistic Missile (ABM) Treaty, for fear that effective defence mechanisms would nullify offensive-strike capability.
- iv. This was expressed when John F. Kennedy was a presidential candidate, in the third Presidential debate between Kennedy and Richard Nixon on 13 October, 1960: "There are indications because of new inventions, that 10, 15, or 20 nations will have a nuclear capacity, including Red China, by the end of the Presidential office in 1964." See: "JFK on Nuclear Weapons and Non-Proliferation," Carnegie Endowment for International Piece, <http://carnegieendowment.org/2003/11/16/jfk-on-nuclear-weapons-and-non-proliferation-pub-14652>.
- v. The US Nuclear Posture Review (NPR) of 2010 and the NATO Defence and Deterrence Posture Review (DDPR) of 2012 state that nuclear weapons should only be used in extremis.
- vi. Henry Kissinger, *On China* (New York: Penguin Books, 2011), 496.
- vii. This is enshrined in North Atlantic Treaty Organisation, *MC 14/3: Overall Strategic Concept for the Defence of the North Atlantic Treaty Organisation Area* (Brussels: NATO Strategy Documents, 1968), <http://www.nato.int/docu/stratdoc/eng/a680116a.pdf>.
- viii. This is the author's assessment on the basis of commentary by retired senior officers and officials on both sides, separately.
- ix. An interesting insight into political leadership is given by Michael Krepon: "Deterrence stability was achievable only when the United States and the Soviet Union were led by risk-taking leaders who rejected nuclear orthodoxy." See: Michael Krepon, "Can Deterrence Ever Be Stable?" *Survival: Global Politics and Strategy* 57, no.3 (2015): 116, <http://www.iiss.org/en/publications/survival/sections/2015-1e95/survival--global-politics-and-strategy-june-july-2015-b48d/57-3-07-krepon-ad43>.
- x. The latest meeting on the India–China boundary question was the 19th special representatives' meeting, held in Beijing on 20–21 April 2016. For further

information see: International Institute for Strategic Studies, *Asia-Pacific Regional Security Assessment 2016* (London: International Institute for Strategic Studies, 2016), 24; “Question No.1624 Indo-China Border Talks,” Ministry of External Affairs, Government of India, <http://www.mea.gov.in/lok-sabha.htm?dtl/27153/QUESTION+NO1624+INDOCHINA+BORDER+TALKS>.

- xi. Michael Quinlan, *Thinking about Nuclear Weapons: Principles, Problems, Prospects* (Oxford: Oxford University Press, 2009), 6.
- xii. George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation* (California: University of California Press, 2001).
- xiii. Feroz Khan, *Eating Grass: The Making of the Pakistani Bomb* (Stanford: Stanford University Press, 2012).
- xiv. The DPRK announced it was withdrawing from the NPT on 10 January 2003.
- xv. For further information see: International Institute for Strategic Studies, *Nuclear Black Markets: Pakistan, A.Q. Khan and the rise of proliferation networks - A net assessment* (London: International Institute for Strategic Studies, 2007).

# A Nuclear Restraint Regime for the Second Nuclear Age

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Ramesh Thakur

## Introduction

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Former US Defense Secretary William Perry has warned that “the danger of a nuclear catastrophe today is greater than during the Cold War.”<sup>1</sup> Indeed, the fact that the nuclear peace has held so far owes as much to good luck as sound stewardship. Nuclear weapons may or may not have kept the peace among various groups of rival states; they could be catastrophic for the world if ever used by both sides in a war between nuclear-armed rivals. Such prospects have grown since the end of the Cold War. On balance, consequently, nuclear weapons endanger international security more than they provide national security, but states that possess nuclear weapons are trapped in the prism of having to anchor their nuclear policies solely on national calculations. The overarching context for any discussion about nuclear weapons policy comprises three sobering reflections:

- For nuclear peace to hold, deterrence and fail-safe mechanisms must work *every single time*. For nuclear Armageddon to break out, deterrence or fail safe mechanisms need to *break down only once*. This is not a comforting equation.
- Deterrence stability depends on *rational decision-makers being always in office on all sides*: a dubious and not reassuring precondition. How reassured would the world feel—including Americans—if the world’s nuclear peace depended on, say, Donald Trump’s or Kim Jong-un’s fingers on nuclear buttons? Deterrence stability depends equally critically on there being *no rogue launch, human error or system malfunction*. As more states acquire nuclear weapons, the risks multiply exponentially with the requirements for rationality in all decision-makers, robust command and

control systems in all states, 100 percent reliable fail-safe mechanisms and procedures against accidental and unauthorised launch of nuclear weapons, and unbreachable security measures against terrorists acquiring nuclear weapons. This is an impossibly high bar.

## The Asia-Centric Second Nuclear Age

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Of the world's nine nuclear weapons possessing countries – China, India, North Korea, Pakistan, France, Israel, Russia, the United Kingdom and the United States – four are in Asia. Not surprisingly, therefore, nuclear risks and threats that exist globally are also present in Asia, and in some cases are even more acute in the region. The Nuclear Non-Proliferation Treaty (NPT) is the normative anchor of the global nuclear orders on disarmament, non-proliferation, safety and security. Asia – and only Asia – contains states with the full spectrum of nuclear weapons status in relation to the NPT: one NPT-licit nuclear weapons state (NWS) (i.e., China), two non-NPT nuclear-armed states (India and Pakistan), the world's only NPT defector state (North Korea), three umbrella states (Australia, Japan, South Korea), and a vast majority of non-NWS States Parties to the NPT. China is also the sole Asian permanent member of the United Nations Security Council which functions as the global enforcement authority in the maintenance of international peace and security, including nuclear peace.

All nine nuclear-armed states pay lip-service to the ultimate elimination of nuclear weapons. However, their actions—with respect to weapons arsenals, fissile material stocks, force modernisation, declared doctrines and observable deployment practices—demonstrate intent to retain nuclear weapons indefinitely. Although the Asian nuclear powers' combined stockpiles total only three percent of global nuclear arsenals, warhead numbers are growing in all four Asian nuclear-armed states (and in none of the other five).

The first nuclear age was shaped by the overarching ideological rivalry of the bipolar Cold War protagonists, the competitive nuclear arms build-up and doctrines of the two superpowers, and the development of mechanisms for maintaining strategic stability. The arena of great power rivalry has shifted from Europe to Asia in the second nuclear age, characterised by a multiplicity of nuclear powers with criss-crossing ties of cooperation and conflict, the fragility of command and control systems, the critical importance of cyber-security, threat perceptions between three or more nuclear-armed states simultaneously, asymmetric perceptions of the military and political utility of nuclear weapons, and the resulting greater complexity of deterrence relations between the nine nuclear-armed states.

Changes in the nuclear posture of one can generate a cascading effect on several others. The nuclear relationship between India and Pakistan, for example, is conceptually, politically and strategically intertwined with China as a nuclear power. The strategic boundary between nuclear warheads and conventional precision munitions is being steadily eroded.

A particularly good recent example of the interlinked global nuclear chains, and of the porous boundary between nuclear and conventional weapons, is the US announcement on 20 October 2018 of the intention to abrogate the 1987 US–Soviet Treaty on Intermediate Range Nuclear Forces (INF). The treaty prohibits the development, testing and possession of ground-launched cruise and ballistic missiles from 500 km to 5,500 km range, irrespective of whether they are armed with nuclear or conventional warheads. In one theatre (i.e. Europe), the US alleged that Russia has been cheating on its INF obligations for several years with the development and deployment of 2000 km-range nuclear-capable ground-launched missiles, called SSC-8 by NATO. But the US exit from the INF is, in part, a response to China’s growing challenge to US dominance in the Asia-Pacific. China is not a party to the INF and thus unconstrained by its limits. About 95 percent of its missiles are in the intermediate range prohibited by the INF. This empowers China to target US ships and bases from the mainland by relatively inexpensive conventional means. Without the INF restrictions, the US could develop and station ground-launched intermediate range cruise missiles in Guam, Japan, South Korea and northern Australia. That said, US allies in the Pacific will be deeply conflicted if asked to host American missiles on their soil.

There are far fewer nuclear weapons today than during the Cold War, and they play a lesser role in shaping relations between Moscow and Washington. Therefore, the risk of a nuclear war between them remains low. Yet, the overall risks of nuclear war have grown with more countries with weaker command and control systems in more unstable regions possessing these deadly weapons, terrorists wanting them, and vulnerability to human error, system malfunction and cyber attack. Premeditated large-scale conventional attacks and preemptive nuclear strikes seem unlikely pathways to a nuclear exchange between India and Pakistan, China and India, North Korea and the US, or China and the US. However, the toxic cocktail of growing nuclear stockpiles, expanding nuclear platforms, irredentist territorial claims and out-of-control jihadist groups makes the Indian subcontinent a high-risk region of concern. Northeast Asia is the world’s most dangerous cockpit for a possible nuclear war that could directly involve three NWS (China, Russia, the US) plus North Korea as a non-NPT nuclear-armed state and South Korea, Japan and Taiwan as major US allies.

Despite the 2011 Fukushima accident, interest in expanding nuclear power remains especially strong in Asia; this enthusiasm is led by China and India who account for 28 and 25 percent, respectively, of the number of active reactors and the amount of electricity generated by nuclear power in the world. When looking at reactors under construction and planned, Asia's global share climbs dramatically to 58 and 51 percent of reactors, respectively, and to 57 and 65 percent of the share of electricity to be generated by nuclear power.

Geopolitical tensions have risen in Europe since the Russia–Ukraine crisis in 2014, with Moscow's increasingly determined resistance to Western efforts to overturn the postwar settlement in Europe. In the Middle East, the Syrian crisis remains unresolved, the US withdrew unilaterally from the multilaterally negotiated and UN-endorsed Iran nuclear deal in May 2018, and Saudi–Turkish tensions flared with the murder of dissident Saudi journalist Jamal Khashoggi inside the Saudi consulate in Istanbul on 2 October 2018. In South Asia, there is conflict in Kashmir and low-level but continuing border skirmishes involving militants and Indian and Pakistani military forces. And in East Asia, China is growing more assertive in its maritime territorial disputes and militarising its chain of islets in the South China Sea. After a major anti-China foreign policy speech by US Vice President Mike Pence on 4 October 2018, analysts began to speak openly of a new Cold War 2.0 between today's two leading global powers. Meanwhile, North Korea gives little evidence of a move from promise to deeds on denuclearisation. Consequently, nuclear risks have also intensified, making US President Barack Obama's 2009 Prague dream of a world freed of nuclear threats an increasingly distant memory. The irony is that great power tensions make nuclear arms control not only more difficult but also more urgent.

Against this sobering backdrop, this essay advocates the creation of a nuclear restraint regime suited to the second nuclear age that discards three legacy nuclear postures from the Cold War era: a no-first-use (NFU) declaration or convention; de-alerting; and elimination of tactical nuclear weapons and land-based intercontinental ballistic missiles (ICBMs). All three survive from Cold War postures, doctrines and deployments that are increasingly disconnected from current and emerging national and global security threats, including climate change, mass refugee migrations and population displacements, pandemics, terrorism and cyber-warfare. In effect, first-use posture is a Cold War deterrence legacy whose logic breaks down once nuclear weapons are used, and the empirical reality is transformed, from peacetime deterrence by nuclear weapons, to fighting an actual war with nuclear weapons. On balance, first-use policy and launch-on-warning posture, with deployment of US nuclear weapons in European theatres an operational requirement of the two, undermine rather than bolster deterrence. Conversely, removing the threat of first use, de-alerting nuclear weapons and

dismantling ICBMs and tactical nuclear weapons would deepen crisis and strategic stability and increase pressure on other nuclear-armed states to revise their nuclear doctrine and readjust nuclear postures.

## No First Use

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The purposes of declaratory policy include providing intellectual guidance to military planners, deterring adversaries, and reassuring allies and friends. But they also shape global norms, and global nuclear norms include deterrence, non-proliferation, security and non-use. The last, in particular, has come under severe strain from the fact that the strategic boundary between nuclear warheads and conventional precision munitions is being steadily eroded. An NFU policy would serve to strengthen strategic stability, reinforce the normative boundary between nuclear and conventional weapons, deepen the illegitimacy of any first use of nuclear weapons, and devalue the currency of nuclear weapons.

During the Cold War, the option of a first-use policy made sense in confronting the massive Soviet threat along the entire European front. That is now history; since then, the balance of costs, benefits, risks and constraints has altered dramatically. The post-Cold War declaratory policy should state that the role of US nuclear weapons is to deter a nuclear attack on the US and its allies and, in the event that deterrence fails, to be able to respond with an appropriate range of nuclear and non-nuclear options. The 2010 US Nuclear Posture Review made no reference to NFU but did take a small step in the direction of “sole purpose,” saying Washington would “work to establish conditions under which such a policy could be safely adopted.” A subsequent Pentagon-led inter-agency review reaffirmed the existing core principles and characteristics of US nuclear-strike planning.

The 2018 Nuclear Posture Review<sup>ii</sup> is the official policy guide that will shape the Trump administration’s nuclear decision-making, modernisation, targeting, and signalling. Its vision of the role of nuclear weapons is expansive. Previous efforts to trim the types of nuclear weapons in the US arsenal were reversed with promises to introduce two new types: a low-yield warhead for the Trident SLBM and a new nuclear-armed sea-launched cruise missile, in order to “provide additional diversity in platforms, range, and survivability, and a valuable hedge against future nuclear ‘break out’ scenarios.” The circumstances in which the use of US nuclear weapons might be contemplated and justified have been widened. The fourfold effect of the 2018 NPR is to enlarge the US nuclear arsenal, lower the threshold for the use of nuclear weapons, and broaden the circumstances and contingencies in which the threat of nuclear weapons can be made as tools of diplomatic coercion. Americans are not reassured. A majority—60 percent in a *Washington Post* opinion poll—do not

trust Trump to handle his nuclear command authority with due responsibility, but are instead concerned that he may launch a nuclear attack without justification.<sup>iii</sup> Similarly among Canadians—the geographically closest US ally—while 88 percent have faith in the security benefits of NATO, the US is rated the second biggest threat at 16 percent (terrorism tops with 29 percent). Remarkably, more Canadians (five percent) believe Trump is a threat than do Russia (four percent).<sup>iv</sup>

A no-first-use declaration would state that nuclear weapons will be used only in response to a nuclear attack or, in a modified form, against biological, chemical and nuclear attacks. Thus, the use of nuclear weapons would be ruled out against conventional attacks regardless of their scale. The starting point of such a policy is that in practice, first use of nuclear weapons lacks strategic logic. Both deterrence and non-use are among the cluster of powerful nuclear norms (along with non-proliferation, disarmament, safety and security). The moral opprobrium of using nuclear weapons against a non-nuclear country would be too high a price to pay for any security gains. This explains why Argentina invaded the Falkland Islands in 1982 despite the British nuclear deterrent: Argentina was confident that the UK would not escalate to the use of nuclear weapons. Against nuclear adversaries with a retaliatory capability that can survive a surprise attack, any first use would provoke a nuclear retaliation. Rather than being a sensible policy, therefore, a first-use policy is a commitment to mutual suicide. Because nuclear adversaries know this, the threat of first use is non-credible, and no policy that is not credible can successfully deter any aggression.

Of course, the same logic inhibits, even more powerfully, the first use of nuclear weapons against the US by any adversary. The one temptation to the contrary would be if the adversary is convinced that under a first-use policy, US nuclear weapons are about to be used, and it launches a preemptive nuclear attack. In other words, a first-use policy serves no real deterrent purpose but may increase the risk of a catastrophic nuclear war by heightening nuclear fears all round and creating temptations for a preemptive surprise attack.

Belief in the efficacy of the first-use policy propels the search for nuclear primacy, whose core logic is unavoidably self-defeating. The pursuit of nuclear primacy provides powerful motivation to adversaries to invest massively in counter-measures, including increased warhead numbers, less vulnerable basing platforms and storage sites, and additional warheads being placed on high alert. Thus on 1 March 2018, Russia's President Vladimir Putin boasted of a new array of invincible nuclear weapons that can penetrate any defences anywhere in the world.<sup>v</sup> Conversely, should nuclear primacy be attained, it adds powerful incentives, under the threat of a feared disarming first strike by the United States, for the adversary to launch a preemptive attack as a crisis erupts and escalates.

By contrast, strategic stability is deepened if both sides in a nuclear conflictual relationship are convinced that neither side possesses or is seeking to possess primacy; each prioritises survivable forces to launch retaliatory attacks; and to that end each side has abandoned first-use posture *and plans*.

The key consideration to remember is that NFU as policy does not guarantee no first use in practice in a particular crisis, any more than a first-use policy guarantees first use. Thus, the American use of the phrase “calculated ambiguity,” as in the oft-repeated threat, “All options are on the table,” without ever spelling out the circumstances in which US nuclear weapons would be used. Therefore, what is crucial are declarations, doctrines, postures and deployments that reduce risks. An NFU policy would eliminate the rationale for forward deployment of US nuclear weapons on the territory of NATO allies in Europe (none are believed to be deployed on allied territory in Asia since their withdrawal from South Korea): those based in Turkey were a matter of some concern during the failed coup attempt there.

Obama was right: “As the only nation ever to use nuclear weapons,” the US does indeed have “a moral obligation to continue to lead the way in eliminating them.”<sup>vi</sup> The doctrines and postures of any one nuclear-armed state can have a cascading effect on all others. US doctrine, declaratory policy and nuclear force posture exert a legitimising pull on other nuclear-armed states; how could it be otherwise?

Doctrinally, China and India are the only two of the world’s nine nuclear-armed states committed to NFU in their current nuclear policies. If no other nuclear powers follow their examples, in due course China and India too might abandon NFU and put some nuclear weapons on high alert as Beijing is reportedly considering. The growing accuracy and lethality of US conventional precision munitions, the continuing interest in ballistic missile defence systems, and the US refusal to adopt NFU makes many Chinese nervous that Washington harbours doubts about China’s survivable second-strike retaliatory capability. Chinese anxieties are strengthened by the US refusal to acknowledge mutual vulnerability vis-à-vis China. According to Gregory Kulacki, in “a significant—and dangerous—change in Chinese policy,” China’s military planners have for the first time begun to discuss putting the country’s nuclear missiles on high alert, believing that this “would be a step toward assured retaliation.”<sup>vii</sup> In January 2018, the official paper of the People’s Liberation Army called for China to strengthen its nuclear deterrence and counter-strike capabilities to match the developing US and Russian nuclear strategies.<sup>viii</sup>

It is hard to see NFU surviving a change in China’s de-alert status. If China follows the Russian and US lead in putting some of its warheads on alert, how long before the posture proliferates to India and Pakistan? Conversely, the intent that is signalled

by a declaration of NFU can be buttressed by a nuclear restraint regime. If adopted by all nuclear-armed states, NFU could become the centrepiece of a global nuclear restraint regime. The physical qualities of nuclear forces and infrastructure would be reconfigured to make them suitable only for deterring nuclear attack and unfit for offensive actions.

## NFU and Extended Nuclear Deterrence

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With massive conventional superiority against any conceivable adversary long into the foreseeable future, the US does not need nuclear weapons against non-nuclear countries. The public debate suggests that a key factor inhibiting Washington from adopting NFU is nervousness of some European and Asian allies who seek security under the protective umbrella of US nuclear weapons. Thus, a first-use policy, even though it makes no operational sense as a policy of strategic deterrence, might serve the purpose of strategic reassurance of the umbrella states. If so, the umbrella states are suffering from a potentially fatal illusion. Given the stakes with nuclear weapons, it is grave folly to anchor alliance security in strategic illusions. Extended nuclear deterrence has its limitations. The use of nuclear weapons to defend an ally against a nuclear-armed adversary would risk nuclear retaliation against the United States.

In the Asia-Pacific, extended nuclear deterrence is understood in the context of the reliance by a number of Western allies on US nuclear capability, not only to prevent possible nuclear attack, but also to deter or respond to threats from biological and chemical weapons, and indeed overwhelming conventional forces, deployed against them. The umbrella argument has been expressed sharply in Australia's Defence White Paper: "Only the nuclear and conventional military capabilities of the United States can offer effective deterrence against the possibility of nuclear threats against Australia."<sup>ix</sup> The reliance of Japan and South Korea on the US nuclear umbrella is, if anything, even greater, given their propinquity to North Korea and China (as well as Russia as the third Northeast Asian nuclear-armed state).

In July 2016 Tokyo sought urgent talks with Washington to convey strong concerns over the possibility of the US adopting NFU. For many Japanese, NFU would effectively undermine the credibility of the US extended nuclear deterrence. An unnamed Japanese senior government official, described as being close to Prime Minister Shinzo Abe, bluntly dismissed the change in US nuclear policy to NFU as "unacceptable."<sup>x</sup> Most Japanese had overwhelmingly welcomed Obama's historic visit to Hiroshima in May 2016, the first US president to do so. To many, the adoption

of an NFU policy would be a logical follow-up action to give concrete content to the symbolism of the Hiroshima visit. Hiroshima's and Nagasaki's atomic bomb survivors (*hibakusha*) expressed anger at Tokyo's resistance to the change in nuclear policy, saying it "puts a damper on efforts to eliminate nuclear weapons" and is "unforgivable."<sup>xi</sup>

In practice, extended nuclear deterrence has operated chiefly as an expression of closeness between the US and its allies, rather than a concrete security measure. A diminished role for nuclear weapons, and emphasis on conventional military capabilities consequent to the adoption of NFU, therefore, would have little impact on the substance of US security relationships with Japan and South Korea. As ever, these relationships will rest upon non-nuclear defence and security cooperation, including military acquisitions and purchases, interoperability of forces, joint exercises, flag visits, exchanges in staff colleges, and bilateral and trilateral strategic dialogues involving military commanders and defence, foreign and prime ministers/presidents.

Allies who believe that the US would be the first to use nuclear weapons in any conflict, says Michael Krepon, "are attached to a fiction and a psychological crutch."<sup>xii</sup> Faith in a first-use policy rests in the final analysis on suspended disbelief. A nuclear umbrella may offer protection of the great and powerful ally, but any actual use ceases to be protective and instead morphs into the most catastrophically self-destructive security guarantee imaginable. Nuclear deterrence provides limited utility resting on the logic of mutually assured destruction. Given the known and growing historical record of human errors, system malfunctions and accidents that did happen or almost did, only romantics will pin faith in the quasi-magical powers of total utility in deterrence. Even the limited utility rests on the certainty of nuclear retaliation, not in any belief in its first use. As Krepon notes, a first-use posture (by Pakistan, not India) did not prevent a limited war between nuclear adversaries India and Pakistan in 1999 (although policy and strategic analysts in Islamabad/Rawalpindi believe it contributed to keeping India's actions limited to its side of the control line), did not affect its outcome, and did not prevent dangerous crises from developing.

The only conceivable threats to the security of US allies are from Russia, China and North Korea. The last can be totally and quickly destroyed by the extremely powerful and accurate conventional US armoury. Therefore, on the one hand, US and South Korean conventional forces are more than adequate to defeat North Korean conventional biological, chemical or nuclear aggression. On the other hand, geography and climate ensure that any use of nuclear weapons on North Korean targets would blow back radioactive fallout not just to South Korea but also to Japan. Even if the US and its allies failed to defeat any Chinese or Russian

attack using conventional weapons, Washington could not risk nuclear escalation because of the certainty of nuclear retaliation: the logic of national survival would trump the politics of alliance solidarity.

To be sure, an NFU is fully consistent with an umbrella guarantee against a nuclear attack. Japan's Foreign Minister Katsuya Okada said in a December 2009 letter to US Secretaries of State Hillary Clinton and Defense Robert Gates: "While the Japanese Government places trust and importance on your government's extended deterrence, this does not mean that the Japanese Government demands a policy of your government which conflicts with the goal of a world without nuclear weapons."<sup>xiii</sup>

A second objection to NFU concerns the risks of nuclear breakout by worried US allies. Amid rising nationalism in the region, territorial disputes in the East and South China Seas, continued North Korean nuclear and missiles defiance, concerns about the Obama administration's disarmament agenda, and doubts about the reliability of US deterrence under Trump have been catalysts for pro-nuclear arguments in Japan and South Korea. In South Korea, a leading conservative daily published an article pointing to how Seoul could get the bomb in 18 months.<sup>xiv</sup> An opinion poll in September 2016 showed a massive 60 percent public support for South Korea developing its own nuclear weapons.<sup>xv</sup> In the same month an advisory panel of experts recommended reopening the question of bringing back US nuclear weapons to the peninsula. But the government pointed to the US umbrella, the bilateral US treaty that prohibits diversion of nuclear material to weapons-relevant programmes in return for US fuel for power reactors, and the negative diplomatic and economic repercussions of withdrawing from the NPT, as powerful arguments in support of the denuclearised status quo.<sup>xvi</sup>

Meanwhile in Japan, in a written answer in parliament on 1 April 2016, the government announced that while it remains firmly committed to Japan's three non-nuclear principles (no manufacture, possession or basing of nuclear weapons), in its view the war-renouncing Article 9 of the Constitution does not prohibit Japan from possessing and using nuclear weapons. Japan has stockpiled about 11 tonnes of separated plutonium (plus another 36 tonnes that are held in France and the UK), enough to make more than 2,000 bombs. Nevertheless, although the threshold for the nuclear weaponisation debate has been lowered in Japan with serial North Korean provocations and Chinese belligerence, this remains most unlikely in the foreseeable future. Internationally, the NPT constrains the weapon option, the US nuclear extended deterrence bolsters Japan's security confidence and weaponisation could rupture relations with Washington. Tokyo is also acutely conscious of the extreme regional sensitivities to any nuclearisation. Domestically, the three non-nuclear principles, the strong aversion to nuclear weapons in public

opinion, and the atomic energy basic law that limits nuclear activity to peaceful purposes are additional powerful constraints on the weapons option.

## De-alerting Nuclear Weapons

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**N**FU policies would also help Russia and the US to walk back from the 2,000 nuclear warheads they hold on high alert, ready to launch-on-warning. Should the world be held hostage to an all-out nuclear war launched on the basis of blips on a radar screen? Under the first-use policy, US nuclear weapons on high alert are aimed at 1,000 Russian, 500 Chinese and dozens of other targets in North Korea and other non-nuclear weapon possessing states. The National Security Adviser would have about three minutes in which to notify the president, who would have about 10 minutes in which to decide how to respond. In the midst of a tense crisis generating fear and panic, against the reality of 15-30-minute flight times of incoming missiles, the president will be required to decide on authorising the launch of US nuclear bombs based on possibly confusing, contradictory and false reports from early warning sensors. In the tense environment of nuclear decision-making, high-alert weapons carry a fourfold risk of unnecessary nuclear war:

- Accidental launch (technical failure caused by malfunction);
- Authority to launch being usurped by a subordinate official or by terrorists (custody failure leading to rogue launch). Although the least likely, the risk of unauthorised use increases in the middle of a crisis dispersion of nuclear weapons and in the case of countries like Pakistan whose organisational and technical safeguards may be brittle rather than robust;
- Misinterpretation of incoming warning data (information failure leading to miscalculation);
- Premature and ill-judged response to an actual attack (miscalculation caused by decision-making failure in a crisis).

Like nuclear terrorism, the launch of nuclear weapons on high alert by mistake, rogue launch, miscalculation of incoming information, or through system malfunction is low probability but high impact. Keeping nuclear weapons on high alert, ready for launch within minutes of warning of incoming missiles, creates the risk of a mistaken launch in response to a false warning. Early warning databases are vulnerable to cyber attacks, which increases the risks of mistaken launch-on-warning (also called launch-under-attack) retaliation. And the risks of accidental, unauthorised or mistaken launch are accepted as a hedge against largely implausible attack scenarios.

Like first-use, this practice too is a good example of a Cold War nuclear legacy posture. Historically, alert levels of US and Soviet/Russian nuclear weapons systems have varied with changes in the overall security environment, the deployment patterns of the adversary, fiscal elasticity and political pressures. Keeping land-based nuclear missiles on hair-trigger alert ensured they could be launched before being destroyed on the ground. Today the critical element of a survivable, reliable and credible deterrent is the strategic nuclear submarines that are virtually invulnerable to enemy attack. The hundreds of submarine-based nuclear warheads left *in situ* would be more than adequate to maintain a reliable and credible deterrent after all land-based warheads have been de-alerted and the launch missiles dismantled.

As with NFU, the Obama administration edged towards, but did not quite reach, the point of taking nuclear weapons off high alert, by calling for efforts to reduce US reliance on launch-on-warning and increase the warning and decision time for a president to respond to reports of incoming enemy nuclear missiles. As noted earlier, Trump has walked back from these steps. Yet, anything that lengthens the decision-making fuse such that there is a significant extension of the timeline—from the first report of an incoming threat, to a decision to use a nuclear weapon, to actual launch—can only add to the existing tight margins of security from nuclear weapons. By moving to retaliatory strike postures, de-alerting is a strategic step in downgrading the military role of nuclear weapons. It is also a necessary step in transforming relations between nuclear adversaries from one of strategic confrontation to strategic collaboration. It confirms the now generally assumed status of nuclear weapons as weapons of last resort. There is also a moral hazard argument. Indefinite reliance on nuclear weapons on short notice alert can legitimise the nuclear ambitions of others by legitimising their role in providing national security. There is thus a non-proliferation as well as a disarmament and crisis stability argument for de-alerting. Accordingly, reducing alert status is a confidence building measure, not only among NWS but also between them and non-NWS.

## Dismantling Land-Based Missiles and Eschewing Tactical Nuclear Weapons

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In addition to the reinforced normative barrier against use, NFU and de-alerting would permit the dismantling of vulnerable land-based warheads. A report by the Washington-based Nuclear Threat Initiative concluded that NATO's enhanced conventional capabilities "should be sufficient for credible deterrence in the east and flexible for other contingencies."<sup>xvii</sup> Perry makes a persuasive case for

dismantling the US land-based nuclear forces. Once the ICBMs are launched, he points out, they cannot be recalled.<sup>xviii</sup> He recounts a false alarm about 200 Soviet ICBMs from the 1970s, when he was the undersecretary for defence (research and engineering). The general who had telephoned the news quickly explained that it was a false alarm and they needed technical help to work out why the computer had malfunctioned. During the Cold War, the ICBMs served a dual purpose. The then-submarine-based nuclear force was not accurate enough and the ICBMs made up for that. The submarine force was also vulnerable back then to a disabling strike by the enemy. Today's submarine-launched ballistic missiles (SLBMs) are both highly accurate and also invulnerable for the foreseeable future. However, for insurance, the United States could retain a fleet of bombers. He concludes that the analysis holds true regardless of whether or not Russia reciprocates. If Moscow wants to enlarge its missile arsenal, he believes, it will merely damage its economy without affecting US nuclear preparedness and relative strength.

Perry's 2016 analysis fully matches an earlier study.<sup>xix</sup> Col. B. Chance Saltzman, chief of Strategic Plan and Policy Division at US Air Force Headquarters and colleagues—who do not believe in nuclear elimination—calculated that the US can meet all its national security and extended deterrence requirements with only 311 nuclear weapons: 192 single-warhead, hard to detect and highly survivable and accurate SLBMs aboard 12 Ohio class submarines, each of which can hold 24 missiles; 100 single-warhead ICBMs; and 19 air-launched cruise missiles aboard stealth B-2 bombers. Whether Russia followed suit or not is irrelevant. Even a substantial numerical superiority is of no military-operational consequence, although it could have political-psychological effects.

Regionally, the development of tactical nuclear weapons by Pakistan as a counter to India's superiority in conventional arms, and to compensate for its lack of strategic depth, would seem to leave open the possibility of first use of nuclear weapons against India, particularly in the case of invasion. Deployment of nuclear weapons on the forward edge of the battlefield requires the delegation of command and control to military units in the field. This increases the risks of unauthorised launch, miscalculation, accident, theft and infiltration by militant groups.

## Conclusion

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**N**FU thus has significant practical implications for official nuclear doctrine and nuclear deployment practices, encouraging a shift away from high-risk doctrines and deployments. First-strike postures, pre-emptive capabilities and destabilising war-fighting strategies would be curtailed. A credible NFU policy would induce targeting restraint, reduce alert levels, downgrade launch-

on-warning deployments, and mute modernisation plans. A universal no-first-use global convention signed by all the nuclear-armed states would reflect and reaffirm the strong tradition of non-use of nuclear weapons that in practice has made any first use of nuclear weapons politically and morally unacceptable, and to that extent would not involve any substantive change to the security benefits that nuclear-armed states claim to derive from nuclear weapons. It would also have considerable practical import with flow-on requirements for nuclear force posture and deployment, for example, de-alerting, de-mating and de-targeting. In turn, while strengthening the norm of non-use of nuclear weapons, it would reduce trust deficits, promote confidence building between nuclear-armed states, and contribute to a climate conducive to further progress on nuclear disarmament.

Accordingly, at virtually no additional risk to the national security of the nuclear-armed states or their umbrella allies, an NFU policy could help initiate a much-needed nuclear restraint regime that hardens the recently blurring boundary between conventional and nuclear weapons, deepens the illegitimacy of first use, reinforces the norm of non-use, and devalues the currency of nuclear weapons. It would also defuse some of the growing frustration, impatience and anger that has fed the humanitarian movement against nuclear weapons and generated fresh momentum to go for a ban treaty ahead of the nuclear powers' willingness to take part in these discussions. On 27 October 2016, the First Committee of the United Nations General Assembly adopted, by a landslide 123-38 vote (with 16 abstentions), Resolution A/C.1/71/L.41 that called for negotiations on a "legally binding instrument to prohibit nuclear weapons, leading towards their total elimination." The conference was convened in two sessions in New York (27-31 March, 15 June-7 July 2017). On 7 July, 122 states voted to adopt a new Nuclear-Weapon Prohibition Treaty (NWPT) that will come into effect after 50 states have ratified it. It was opened for signature at the United Nations in September 2017 and, as of the end of October 2018, 19 countries had ratified and 69 had signed it. From the Asia-Pacific, excluding the four nuclear-armed and three umbrella states, 26 of the remaining 31 states voted for the NWPT. Thus, reflecting the historical drag of the first nuclear age, Australia, Japan and South Korea voted in solidarity with their US nuclear protector and against the overwhelming global tide of opinion and also against the dominant sentiment of their Asian and Pacific neighbours. They have, therefore, placed themselves on the wrong side of history, geography and humanity.<sup>xx</sup>

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## **Section II**

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### **RECONCILING ASSUMPTIONS WITH EMPIRICAL CHALLENGES**



# An American Perspective on a Framework for Strategic Stability in the Second Nuclear Age

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**Matthew Kroenig**

**H**as the world entered a “second nuclear age” and can policymakers develop a framework for strategic stability that permits the international community to avoid nuclear use even while major powers continue to possess nuclear weapons? The first nuclear age centred around the bipolar, strategic competition between the United States and the Soviet Union, along with concurrent nuclear weapons proliferation to several major regional powers, such as Britain, France, China, Israel, India and Pakistan. Following the end of the Cold War, great power political competition and nuclear weapons receded into the background for a quarter century. The threat of weapons proliferation to rogue states, such as Iran and North Korea, and the threat of nuclear terrorism still remained at the top of the US agenda, but the prospect of great power arms competition or nuclear exchange seemed remote. Then, in the early 2010s, China and then Russia, reemerged as major powers on the international stage, challenging the US-led order that had stabilised international politics for over two decades. In addition, nuclear arms competitions elsewhere, including in South Asia, intensified, reminding the world of the possibility of geopolitical competition, the politics of nuclear weapons, and the risks of nuclear use.

In many ways, this second nuclear age is more complicated than the first and a proper understanding of it will require a sustained intellectual effort. This paper aims to contribute to the conversation by addressing a series of questions from a US perspective.

The first question addresses the issue of the nuclear taboo. Is the nuclear taboo, in place since 1945, at greater risk of erosion in the second nuclear age? The nuclear taboo is the idea that the use of nuclear weapons is so abhorrent that national leaders have developed

and internalised a strong norm against their use.<sup>ii</sup> The norm is so strong, some have argued, that it has taken on taboo-like qualities. Indeed, studies have shown that US leaders did not consider the use of nuclear weapons even in situations such as the First Gulf War, in which it could have been advantageous from a military perspective.<sup>iii</sup>

There are, however, real questions about the historic strength of the nuclear taboo, as well as its future prospects. There is a good case to be made that the taboo was never as strong as its proponents believe. To be sure, nuclear weapons have not been used in anger since 1945, but mutual nuclear deterrence likely played at least as important a role as standards of appropriate behaviour. In addition, the full-scale wars that did take place involving nuclear states, such as the First Persian Gulf War of 1990 did not pose an existential threat for the nuclear powers involved. If, in contrast, the Soviet Union had invaded Western Europe at the height of the Cold War, for example, then it is very likely the nuclear taboo would have been broken. If not a taboo, then at a minimum, the world has witnessed a lasting “tradition of nonuse.”<sup>iv</sup>

There may be reason to believe, however, that this tradition is coming to an end.<sup>v</sup> Nuclear-armed powers facing a rival with conventional military superiority often rely on nuclear weapons to offset the rival’s conventional advantages. At present, both Russia and Pakistan rely on versions of this strategy to counter the military power of NATO and India, respectively. Unlike past powers, however, it appears that Moscow is employing this tactic as part of an overall, offensive geopolitical strategy.<sup>vi</sup> As witnessed in 2014, Russian President Vladimir Putin utilised “hybrid” warfare to seize territory in Ukraine and then used threats of early nuclear escalation in a bid to deter outside intervention. If Russia were to re-run this playbook against a NATO ally, then the United States would be forced to come to its ally’s defence, generating a real risk of nuclear exchange.

Others have argued that Pakistan also views nuclear weapons as a shield behind which it can get away with lower-level military challenges.<sup>vii</sup> And there is a clear path by which such challenges could lead to nuclear escalation: Pakistan sponsors a cross-border, non-state attack against India; India retaliates with a punitive, conventional thrust into Pakistan; and Pakistan follows through on its threats to employ tactical nuclear strikes on advancing Indian forces on Pakistan’s own territory.

North Korea is another state that may be at risk of employing nuclear weapons. It is believed to have enough nuclear material for up to two dozen warheads, possesses missiles capable of ranging much of East Asia, and is hard at work on longer-range missiles.<sup>viii</sup> It has also engaged in frequent nuclear brinkmanship against the United States and its allies. Pyongyang has repeatedly announced its intention to

use nuclear weapons pre-emptively in a conflict and there are, unfortunately, a variety of plausible scenarios in which it is conceivable to imagine a North Korean nuclear use. In the event of a major crisis or conflict on the Korean Peninsula, for example, North Korea may have an incentive to use nuclear weapons early in a bid to force the United States to halt its war aims and preserve regime survival.

Complicating the issue is the increasing multipolarity of nuclear dynamics. During the Cold War, the central nuclear relationship was between the United States and the Soviet Union. At present, however, there is a “strategic chain” of interlinking nuclear dyads and triads, which greatly complicates nuclear policy and international strategic stability.<sup>ix</sup> These interrelationships are most pronounced in Asia. At one end of the chain, Russia sets its nuclear policy to take into account both the United States and China. US nuclear policy is aimed at deterring Russia, China, and North Korea. China’s nuclear forces must contend with Russia, the United States, and India. India’s nuclear deterrent is meant to address threats from both China and Pakistan. And, rounding out the chain, Pakistan’s nuclear forces are designed to deal with its sole nuclear threat from India.

The US has developed what is perhaps the largest academic and policy literature on nuclear deterrence, but these well-entrenched schools of thinking are as much a curse as they are a blessing. Scholars and policymakers often simply apply Cold War models and ways of thinking in situations where they no longer fit. Little work has been devoted directly to understanding nuclear multipolarity, but one recent study does make a serious attempt, theorising how nuclear multipolarity might affect nuclear strategy, escalation, extended deterrence, arms control, and proliferation.<sup>x</sup> It then illustrates these arguments with ongoing nuclear developments in Asia. As it relates specifically to escalation, the study identifies several new pathways by which nuclear multipolarity could increase the risk of nuclear use.

Another potential source of instability are the plans in many nuclear-armed states for nuclear expansion and modernisation. In recent years, Russia, China, India, Pakistan and North Korea have all engaged in such efforts. The most consternation, however, is often levelled against US nuclear modernisation efforts and its plans to spend up to US\$1 trillion over the next 30 years to build new nuclear bombers, submarines, and (intercontinental ballistic missiles) ICBMs. Some critics charge that US modernisation plans will spark a new arms race.

In reality, however, US modernisation plans are quite modest. Washington is not preparing for an arms build-up; rather, it is merely proposing to replace the forces in its current posture. Moreover, US modernisation plans are trailing far behind those of its nuclear superpower competitor, Russia. While Washington debates modernisation of its triad, Moscow is already fielding new missiles and

submarines. Furthermore, Russia has retained classes of weapons from the Cold War that the United States has long ago purged from its arsenal, such as nuclear artillery. Moreover, Moscow is building new types of nuclear capabilities, including a new ground launched cruise missile and a nuclear-armed submarine drone.<sup>xi</sup> In the United States, in contrast, more advanced nuclear options, such as mobile ICBMs, or a robust nuclear Earth penetrating weapon, have been considered and rejected. And the United States has not responded to Russia's development of new nuclear capabilities. It is difficult to argue, therefore, that Washington's plans will somehow start a new arms race. If anything, Russia is already off and running while the US sits in the bleachers, fiddling with its shoe laces. With its current modernisation plans, therefore, it is highly unlikely that the United States will possess the capacity to find new or different roles for nuclear weapons.

There are serious debates in Washington, however, about whether US modernisation plans go far enough. If the United States hopes to deter Russia's more assertive "escalate-to-de-escalate" nuclear strategy and to deter a pre-emptive attack from North Korea, then new, more flexible nuclear options may be necessary.<sup>xii</sup> Deploying to Europe lower-yield warheads on platforms capable of penetrating Russian air defences, such as a short-range air launch cruise missile, will provide a more credible deterrent to Russia's limited nuclear warfighting strategy. In East Asia, the US and its allies could make tracking and targeting North Korean mobile missiles a higher priority. There are signs that the new Trump Administration may be sympathetic to this view. In a national security presidential memorandum signed on 27 January 2017, US President Donald Trump promised "a new Nuclear Posture Review to ensure that the United States' nuclear deterrent is modern, robust, flexible, resilient, ready, and appropriately tailored to deter 21st-century threats and reassure our allies."<sup>xiii</sup>

Others question whether the US "Third Offset Strategy" will lead to technological breakthroughs that may alter US nuclear doctrine and strategic stability between now and 2035. The fundamental idea behind the strategy is that the United States has been able to offset the quantitative superiority of rivals in the modern era through its advantages in applying advanced technology to the military sphere. The first offset was relying on nuclear weapons to offset the Red Army's conventional advantage in Europe in the early Cold War. The second offset was embedding information technology in military hardware in order to provide a precision advantage. The third offset will seek to find the next innovation to compensate for growing Russian and Chinese capabilities.

It is difficult to know whether and how this strategy will pay off. Moreover, the primary focus of the strategy appears to be more on improving America's conventional battlefield effectiveness and not aimed at the strategic, nuclear level.

Further, while the term is sometimes read as all-encompassing, the announced spending priorities are in fact narrowly targeted in six issue areas: anti-access and area-denial; guided munitions; undersea warfare; cyber and electronic warfare; human-machine teaming; and war gaming and development of new operating concepts.<sup>xiv</sup> To be sure, advances in undersea and cyber warfare and A2AD, especially missile and air defences, could have important strategic effects. Most obviously, they could begin to call into question the survivability of adversary's second-strike capabilities, potentially undermining strategic stability. On the other hand, such investments could also lead to a breakthrough that creates the kind of stability the globe enjoyed from 1989 to 2014, a stability based on largely unchallenged US military predominance.

In this environment, what are the measures that could be envisaged that would reduce the risk of deliberate use, accidental use or unauthorised use of a nuclear weapon in the second nuclear age? What should be the forum in which such a dialogue can be undertaken? As stated earlier, the great risks of deliberate nuclear use against the United States and its formal treaty allies come from North Korea and Russia. To deter such use, the United States and its partners must take the necessary steps to deter any nuclear use. They must be clear and firm that any nuclear use will be met with a nuclear response and ensure that they have a credible strategy and capabilities to follow through on this threat. In Europe, for example, this means strengthening the software of nuclear deterrence in a variety of ways, including through declaratory policy, exercises and publicising the meetings of the NATO high-level group.<sup>xv</sup> In addition, Washington and its allies must ensure that they have the flexible and tailored nuclear forces to follow through on its policy, such as the lower-yield options mentioned above. In Northeast Asia, Washington and its partners in Seoul and Tokyo could work to move towards more thoroughgoing trilateral cooperation, such as on a coordinated regional missile defence architecture, to enhance extended nuclear deterrence on the Korean Peninsula.

**T**he other major nuclear flashpoint is in South Asia. In this region, the United States does not face an enemy, but it would like to see India and Pakistan avoid a nuclear conflagration. Here, it can seek to support a dialogue between the two powers to reduce some of the riskiest nuclear activities, such as the deployment of battlefield nuclear weapons.

Preventing the accidental and unauthorised use of nuclear weapons must also be a priority. Great strides have been made in this regard in recent years, through the development of permissive action links (PALs) and the sharing of best practices with regard to nuclear safety and security. Still, more can be done by facilitating dialogue among the major nuclear powers. One particularly promising idea is

a dialogue of seven, bringing together the permanent five members of the NPT with the nuclear powers outside the NPT, India and Pakistan, for a broad-ranging dialogue on global strategic stability. Once such a conversation is stood up, there are many specific topics that could be broached, including cross-domain deterrence and the interaction of cyber security and nuclear stability.

Of all the various “cross-domain” threats to strategic stability, perhaps the most severe comes from cyber. In the future, a state may be able to conduct a cyber attack against an enemy’s nuclear command and control to turn off its nuclear weapons in a first strike before they can be used. Even if such an attack is not possible, its mere theoretical existence may cause leaders to fear for the survivability of their arsenals.

To head off such a threat to stability, it would be desirable for nuclear-armed countries to agree not to conduct cyber attacks against enemy command and control. While desirable, arms control agreements are only feasible to the degree they are enforceable, and such an accord faces several challenges in practice. First and foremost, ensuring verification and compliance will be difficult. How could one be sure that an adversary has not already infiltrated one’s networks and planted malware that could be activated in the event of a crisis? If one detected an intrusion, will attribution of the source of the attack be possible? And if attributed, could one retaliate in a way to raise the cost to the defector in order to dissuade cheating? Given these uncertainties, some countries may be unwilling to rest their security on such an agreement. Moreover, even if reached and abided to, in the event of crisis, conflict, or war, states may attempt cyber attacks at that time, again threatening stability.

Other possible negotiated frameworks could build on successful confidence-building measures (CBMs) already established and modelled by India and Pakistan. For example, the seven could agree to notify each other of nuclear accidents that may result in international, trans-boundary radiation release or have security implications, building on the 2007 India and Pakistan agreement. They could also agree not to attack declared civilian nuclear facilities, expanding on the 1991 non-attack agreement between India and Pakistan in which both countries annually exchange a list of nuclear facilities that would not be subject to attack.

Narrow discussions on CBMs, however, raise broader questions about the very meaning of strategic stability. Ensuring strategic stability in the second nuclear age first requires a better understanding of the first nuclear age. During the first nuclear age, ‘strategic stability’ was widely believed to mean the lowering of the incentive for either side to strike first and increasing the confidence that they can launch a second strike. But the first nuclear age actually saw two very different models of strategic stability. The first was the well-known model between the United States

and the Soviet Union of mutual vulnerability, secure second-strike capabilities, and rough parity in capabilities. This was not, however, the only model of stability. A second model is one of large asymmetries in the nuclear balance of power. This results in stability because one side possesses a clear first strike capability and the other does not, contributing to stability by instilling caution in the inferior state. This is also the model which is most consistent with contemporary IR theory, which shows that parity is associated with conflict and preponderance correlated with peace.<sup>xvi</sup> As Blainey argued decades ago, conflict is often over disagreements in the balance of power and these disagreements are more likely when there is a rough parity.<sup>xvii</sup> When, on the other hand, one side clearly enjoys superiority, there is stability because the weaker side knows that it has little to gain from a military challenge.

This model of stability prevailed in East Asia. There was nuclear stability between the United States and China, not because they were mutually vulnerable, but because US military preponderance could not be meaningfully challenged. America's military advantages in Asia, however, are being eroded as China expands and modernises its "lean and effective" nuclear deterrence and especially as it drastically expands its conventional military capabilities.<sup>xviii</sup> Moreover, North Korea's nuclear and missile capabilities are also growing and may soon be capable of holding the US homeland at risk. All of these developments are calling into question the will and ability of the US to defend its alliance partners in Asia. It may also be emboldening US competitors as can be seen from China's more aggressive behaviour in recent years, including its island-building campaign in the South China Sea.

To ensure stability in the second nuclear age, therefore, the United States must strengthen its forces to ensure parity with Russia at the same time that it strives to maintain meaningful superiority over China and North Korea. As US President Donald Trump said recently of America's nuclear forces, Washington must remain at "the top of the pack."<sup>xix</sup> It is unrealistic and probably undesirable, however, to expect that the United States can seek to deny China's nuclear deterrent altogether. If Beijing is intent on maintaining an assured retaliatory capability, it will be able to do so. The only possible stable, strategic equilibrium going forward in East Asia, therefore, may be one in which China possesses a secure, second-strike capability, but the United States retains a clear quantitative and qualitative nuclear superiority.

Turning to North Korea, the international community must make slowing, capping, and rolling back Pyongyang's nuclear and missile programmes a foremost priority. Possible tactics to slow the programme include "left of launch" policies, such as cyber attacks and electronic warfare to interfere with missile development and

testing, but ultimately capping and shutting down the programme will require Pyongyang's agreement.<sup>xx</sup> Washington and its partners can attempt a "dual-track" diplomatic approach of increasing pressure on North Korea while holding out the promise of negotiations. Seriously increasing the pressure on Pyongyang will require Chinese cooperation. The problem for years, however, has been that Beijing prioritises regional stability over non-proliferation. Washington can encourage China's leaders to reconsider through the use of secondary sanctions on Chinese firms and banks that do business with the North, forcing them to choose between access to the US market and trade with North Korea. Some may continue with niche businesses, but many more will decide that there is no choice. Until North Korea dismantles its nuclear programme, however, the United States and its allies will need to defend against it. This means strengthening US and allied missile defences and developing and sustaining the ability to track and target North Korea's nuclear missiles to pre-empt them before they can be used.

Achieving strategic stability in the second nuclear age will be much more difficult than in the first, but the pursuit of some of the above policies may help the international community to continue to avoid the use of nuclear weapons even as several major powers continue to possess them.

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# The Right Strategy for China in the Second Nuclear Age

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Tong Zhao

The second nuclear age has several characteristics that distinguish it from the first one. At the system level, general trends include a shifting geopolitical centre of gravity, nuclear multipolarity, and doctrinal and arsenal asymmetries. At the national level, an important player in this new age—China—is undergoing significant changes too. These domestic changes include the increased availability of resources for China’s nuclear-weapons programme, the emergence of nuclear-triad capability, a dramatic increase in China’s so-called “comprehensive national power” and conventional military capabilities, new security environment and threat perception, diversified thinking on nuclear doctrine and posture, and changing relations among different decision-making and practising organisations. All these factors need to be taken into consideration to address the issue of stability in the second nuclear age. Moreover, China should systematically review these changes and strategically consider the connection between national interests and system stability.

## Challenges to the Traditional Framework of Strategic Stability

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There has been a long, global debate about the definition of the term “strategic stability.”<sup>i</sup> For China, it is not a new term. Over the past few decades, the *People’s Daily* has published several commentaries and editorials touching upon the issue of strategic stability.<sup>ii</sup> However, the traditional Chinese understanding of the concept is not completely in line with Western perspectives. The Chinese have traditionally taken a much broader view of strategic stability, which encompasses not only nuclear relations but also wider political-military relations:<sup>iii</sup> a general

state of balance, including security, military, alliance, economic stability and other such dimensions.<sup>iv</sup> This general and abstract approach towards strategic stability has been a major obstacle for Chinese experts and their Western counterparts to arrive at precise understandings of each other's nuclear policies.

Over time, China's nuclear and strategic communities were exposed to Western literature on deterrence and strategic stability. They found the Western analytical framework useful in academic and policy research and began to incorporate it in China's domestic discussions. As of today—although the debate about precise definitions of certain terms is ongoing<sup>v</sup>—many Chinese analysts are comfortable with examining the security implications of specific nuclear policies in terms of their potential impact on “crisis stability” and “arms-control stability,” the two main components of “strategic stability.” China's nuclear policymakers view the maintenance of a secure second-strike capability as the cornerstone of China's deterrent and the fundamental guarantee of national security. Accordingly, China is fully committed to maintaining a relationship of mutually assured destruction (MAD) with its nuclear rivals, and views MAD as a necessary condition for achieving strategic stability.<sup>vi</sup>

However, unlike in the first nuclear age, maintaining MAD as the foundation of strategic stability is becoming increasingly difficult in the second nuclear age. During the Cold War, the existence of MAD could be relatively easily determined by modelling various nuclear-exchange scenarios to see if sufficient nuclear weapons would survive after absorbing a nuclear first strike. Strategic missile defence was limited by the Anti-Ballistic Missile Treaty (ABM) and did not significantly affect the nuclear calculations until towards the end of the Cold War.

Today's nuclear equation is much more complex. Nuclear weapons are now vulnerable to nuclear strikes as well as a wide-range of non-nuclear military capabilities that can potentially threaten the survivability of nuclear weapons. Conventional prompt-strike weapons, for instance, are potentially capable of striking mobile missile vehicles and nuclear command-and-control systems. Advanced space-based surveillance and reconnaissance assets further enhance the capabilities of conventional precision strikes. Discussions about the possibility of using sophisticated cyber attacks to undermine an enemy's nuclear command-and-control system and disable missile launches further exacerbate concerns about the reliability of second-strike capability. Moreover, there is this perception in some countries that advanced missile-defence systems can neutralise the effect of any remnant nuclear-retaliatory capabilities. The emergence of all these new technologies means China probably factors in all of them while determining the existence of MAD between itself and its nuclear rivals.

Additionally, there are huge uncertainties associated with new technologies, and the lack of political trust makes it extremely difficult for countries to agree on whether and how MAD can be maintained. For instance, the Terminal High-Altitude Area Defence (THAAD) is not a strategic missile-defence system and is usually considered a tactical system to intercept short-range and medium-range ballistic missiles. According to American experts, it should thus pose much less threat—or none at all—to major nuclear powers than strategic systems such as Ground-Based Interceptors. However, when the US revealed plans to deploy one THAAD system in South Korea as defence against North Korean missiles, Chinese experts overwhelmingly saw the move as a severe threat to China’s strategic nuclear deterrent. This assessment is dramatically different from the view of American experts that THAAD poses no threat to China’s nuclear deterrent. While both sides are genuinely convinced of their own views, their respective assessments are based on different assumptions. To protect sensitive military information, it is understandable that the US is unlikely to reveal all key technical parameters of the THAAD system, and due to strategic mistrust, China would not believe it even if the US was willing to share these technical details. Since Chinese experts use worst-case assumptions to evaluate the technical potentials of the system (and the underlying political intentions). This led China to draw a dramatically different conclusion from that of the US. Chinese analysts—technical experts and senior decision-makers—as well as the general Chinese public genuinely believe that deploying THAAD is a deliberate strategy to encircle China with missile-defence systems in a step-by-step manner, to ultimately neutralise China’s nuclear deterrent.

Such cognitive divergence is amplified by additional factors such as future uncertainty. Existing missile-defence technologies face major challenges, such as the inability to reliably distinguish real warheads from decoys and chaffs, and the difficulty to deal with saturation attacks. The US officials always point to the technical limits of the existing missile-defence systems as well as the small stockpile of the currently deployed interceptors, as hard evidence that US missile-defence poses no real threat to China’s nuclear deterrent. However, China’s concern is the possibility that the future development of missile-defence technologies could achieve rapid breakthrough and quickly become much more effective and affordable than existing systems. Such concerns are not unfounded. For instance, the US Missile Defence Agency’s recent investment in developing the so-called “Multi-Object Kill Vehicle” may radically improve the capabilities of missile defence in the future.<sup>vii</sup> The concern is that sudden technological breakthroughs such as this will not be completely predictable and will not always leave sufficient time for rival countries to adopt countermeasures. Such uncertainties make it impossible for Washington to reassure Beijing (or Moscow) about the innocuousness of its missile defence.

Geographical reality further complicates the situation, as China and Moscow are located right next to North Korea. The US has a policy of developing and deploying a missile-defence network to protect itself and its allies from North Korean missile threats. However, given the geographical proximity between North Korea and China, any strategic US missile-defence system that can intercept the North Korean intercontinental ballistic missiles (ICBM) will likely also be capable of affecting Chinese ICBMs to some extent, especially if the Chinese ICBMs are deployed in or near the northeast part of the country. Moreover, the numerical gap between the stockpiles of North Korean and Chinese ICBMs will decrease if North Korea manages to build up its ICBM forces in the future. At the moment, China is believed to possess 45–53 ICBMs,<sup>viii</sup> and North Korea has publicly shown that it possesses at least several KN-08 and KN-14 ICBMs, although the North Korean ICBMs have not been successfully flight tested. According to Chinese calculation, only a small portion of its ICBMs would survive a first strike. In that scenario, it is likely that China would not have a much larger number of survivable ICBMs than the North Korean stockpile. Thus, it will be difficult to convince China that a US missile-defence system that can intercept North Korean ICBMs with a high confidence level would not affect the Chinese ones.

To address the threat posed by missile defence on the US–China nuclear relationship, a Chinese expert once proposed that the US should commit to a qualitatively and quantitatively limited missile-defence system in return for China putting a cap on its nuclear stockpile.<sup>ix</sup> This proposal was largely turned down by both Chinese and American experts. One important reason was that it would be difficult for the two to agree on the respective limits on each side. The two sides embrace dramatically different perceptions about the impact of US missile-defence on Chinese nuclear deterrent.

This is just one example of how an additional variable—e.g. the missile defence—in the nuclear equation could complicate the relevant players’ calculations and make it exponentially more difficult for them to agree on what a MAD relationship should look like, given the different compositions of and various uncertainties associated with their respective strategic capabilities. In the second nuclear age, nuclear-weapons states (NWS) will have to take all such variables into consideration, including conventional prompt-strike weapons, advanced space-based surveillance and reconnaissance capabilities, offensive cyber capabilities, and counter-space weapons. All these new and non-nuclear capabilities can, in one way or another, affect the survivability and effectiveness of nuclear weapons and thus are likely considered by the usually very conservative, risk-averse nuclear planners and strategists. The key question for China (and other NWS) is whether it is feasible to continue relying on the maintenance of a MAD relationship as the basis for strategic stability. So far, China seems committed to maintaining a

highly survivable and reliable second-strike capability, despite all the potential challenges posed by new technologies. Given the increasing difficulty in reaching an agreement between nuclear rivals on how to maintain MAD, China and other NWS will likely develop their strategic systems based on their own understandings and predictions of future balances of capabilities across multiple technological domains. The results may be intensified security dilemma and an arms race.

## Other Factors Driving Nuclear Modernisation

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In the first nuclear age, China's nuclear policy was heavily shaped and determined by the first and second generations of its paramount leaders: Mao Zedong, Zhou Enlai and Deng Xiaoping.<sup>x</sup> These leaders advocated a moderate nuclear posture for China. They believed that nuclear weapons should play a relatively limited role in security strategy and that a small nuclear arsenal would suffice as deterrent. However, as the Chinese nuclear community interacted more frequently with their Western counterparts, Western nuclear thinking started to gain influence within China.

Examining nuclear policy issues by using the Western analytical framework, some Chinese experts found that there may be gaps to fill in China's traditional nuclear theories and doctrines. For instance, Chinese experts traditionally do not think that nuclear weapons can or should be used on the battlefield; they view them as strategic weapons that must only be deployed under extreme circumstances or in an all-out war. Therefore, they do not pay much attention to the issue of inadvertent escalations of conflict and do not seriously consider possible pathways for small conventional conflicts to escalate to a nuclear level. According to the existing Chinese nuclear doctrine, the country will not use nuclear weapons first "at any time or under any circumstances."<sup>xi</sup> However, if any country were to launch a nuclear strike on China, it is free to respond with a massive nuclear retaliation.<sup>xii</sup> In other words, in retaliating, China does not promise to distinguish based on the scale of the attack, weapons used, targets destroyed, actual damage caused, or specific circumstances under which the attack took place. This broad-brush type of nuclear-employment strategy falls in line with China's understanding of nuclear weapons as being solely useful for strategic deterrent purposes, but it does not clarify what China would do if an adversary only used a small number of low-yield tactical nuclear weapons in a limited regional conflict. Further, it is uncertain what China will do to prevent a limited nuclear war from unnecessarily escalating to a full nuclear exchange. In recent years, some Chinese experts found that these issues were already thoroughly discussed in the American nuclear literature and suggested that China should consider developing a limited nuclear-warfighting

capability, to be able to respond proportionally to an enemy's small-scale first attack, a strategy similar to the American "flexible-response" strategy.<sup>xiii</sup> This view has not been embraced by mainstream Chinese experts, and is unlikely to be adopted by the government as official policy in the near-term future. However, the example does show that China's traditional nuclear thinking is gradually being challenged and influenced by outside players in the new nuclear age.

There are also signs that current Chinese nuclear modernisation plans are driven less by rational calculations of deterrent requirement, and more by inspirations to follow the steps of other major nuclear powers. For example, while China's nuclear ballistic missile submarine (SSBN) programme can help enhance the overall survivability of its nuclear second-strike capability, a close examination of its history of development reveals that the programme is at least partly motivated by a desire to level with major nuclear powers in terms of main defence technologies.<sup>xiv</sup> Due to geographical and technical constraints, the deployment of an operational SSBN fleet requires China to invest tremendous resources into conventional military assets, to protect its SSBNs. There has not been much discussion or debate in China about the costs and benefits of making such an investment, and yet, the rolling out of new SSBNs has been met with wide and overwhelming support from the general public, who see this emerging capability as evidence of China's rising power.

A senior official of the Air Force of the People's Liberation Army (PLA) revealed in September 2016 that China is developing a new generation of long-range bombers. Given that China's current strategic bomber—the H-6—has limited operational range and is not stealthy, it is widely speculated that the "new generational of long-range bomber" will be a stealthy strategic bomber with a long operational range and probably capable of delivering nuclear weapons. If this is the case, the question to ask is how this new long-range bomber fits into China's nuclear doctrine. China has been relying on land-based missiles as the backbone of its nuclear capabilities for decades and has not attached great importance to its aircraft-delivered nuclear weapons. As the country continues to develop and deploy more advanced and survivable road-mobile ICBMs and also starts to deploy sea-based nuclear weapons, the air leg of China's nuclear capabilities does not seem to add much to an already-robust nuclear deterrent. Moreover, aircraft-delivered nuclear weapons are not known for being particularly survivable and thus will not serve China's priority to enhance the survivability of its nuclear second-strike forces.

Statements of senior officials of the PLA Air Force and China's defence white papers indicate that the development of the new long-range bomber is primarily driven by a long-term strategy to transform the Air Force and make it capable of carrying out missions that modern air forces—such as that of the US—has been

implementing.<sup>xv</sup> Recent Chinese investment in the Air Force has prioritised obtaining a number of strategic capabilities, including strategic bombers, strategic transport aircrafts and stealthy fighter jets, making the Chinese force structure closely resemble the US Air Force.

To some extent, following the role model of other major powers in developing certain strategic military capabilities has been a goal in and of itself. Such desire to imitate other major powers was contained during the Cold War for lack of sufficient resources, but as China is no longer short on funds, it is becoming an ever-important driving force behind China's military modernisation in the second nuclear age. These driving forces represent something other than a rational strategy of maintaining the MAD relationship and, therefore, make it harder to China to discuss issues of strategic stability with other nuclear weapons states and find common ground with them.

Regional security crises beyond its own borders further complicate China's strategic calculations. On the Korean Peninsula, North Korea's rapid development of nuclear and missile capabilities drives South Korea and Japan to strengthen their security ties with the US. While China generally recognises the positive impact of Washington's extended nuclear deterrence over Seoul and Tokyo on containing nuclear proliferation by South Korea and Japan, the increasingly advanced US missile-defence systems being introduced by Seoul and Tokyo has left China feeling threatened about its nuclear deterrent. After North Korea considerably stepped up the frequency of nuclear and missiles tests in 2016, the US—in consultation with South Korea—decided to regularly deploy strategic weapons to South Korea. China sees such offensive strategic military assets as a growing threat.

Due to the serious strategic mistrust between the US and China, many Chinese strategists suspect that Washington has no real interest in resolving the Korean nuclear crisis and is simply using the North Korean threat as an excuse to deploy strategic military assets—including missile defence and offensive weapons—to undermine China's nuclear deterrent and overall security interests. Thus, China is less interested in cooperating with the US to impose more coercive pressure on North Korea, and more devoted to developing countermeasures against the perceived US threat. Many Chinese analysts have called for China to expand its nuclear arsenal and embrace a strategy of pre-emptive conventional strike in response to what they see as US aggression. The strategic rivalry between China and the US–Japan–South Korea alliance is also on the rise.

## Confidence-Building Measures to Reduce Instability

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For the reasons mentioned above, in the second nuclear age, there are new challenges to effectively promote strategic stability among major nuclear rivals such as the US, China and Russia. However, some confidence-building measures are still worth considering for countries to avoid adopting destabilising nuclear postures.

Since China and Russia are concerned that high-precision conventional weapons may be used to undermine the survivability and effectiveness of their nuclear-retaliation capabilities, and senior US officials have promised that the country has no intention of using such weapons against Russian or Chinese nuclear forces, it would be helpful for these countries to make a formal and explicit political commitment to not use such weapons against each other's nuclear facilities, especially nuclear-weapons facilities. It will be difficult to set up strict and comprehensive verification measures for such an agreement, but these countries can consider learning from the Indo-Pakistan experience of forging and implementing a mutual non-attack agreement and exploring steps such as regularly exchanging lists of nuclear facilities, which can also serve as a measure to promote nuclear transparency.

To further reduce future uncertainties, major NWS can consider jointly committing to not arming future prompt-strike weapons—also known as hypersonic vehicles—with nuclear warheads. Hypersonic vehicles that are currently under development by the US, Russia, China and India include hypersonic boost-glide vehicles and hypersonic cruise missiles. These delivery systems travel at high speeds and can change the direction of their trajectories during flight, making it difficult to track them or accurately predict their targets. If such weapons were to carry nuclear warheads, serious confusion could arise, since the potential target country cannot tell whether an incoming strike is a conventional or nuclear one or whether oneself is the intended target. This could easily lead to unnecessary escalations. Taking the nuclear option off the table—before such technology is deployed—will effectively remove a major source of misunderstanding and inadvertent escalation in case of a crisis.

China can also play a role in promoting confidence-building measures in the intersectional area of nuclear and cyber domains. The possibility that sophisticated cyber attacks can undermine nuclear command-and-control systems has fuelled China's concerns. Some US officials have openly talked about scenarios in which they would consider using cyber attacks to interfere and disable an enemy's nuclear command-and-control systems, leading to the failure of a missile to launch successfully. This tactic is called the left-of-launch missile

defence and will be a destabilising strategy to include in the official policy.<sup>xvi</sup> For such cyber attacks to succeed in wartime, the attacker must constantly probe and explore the enemy's nuclear command-and-control system to identify and exploit potential loopholes. Such peacetime probing, if detected, could greatly undermine the target's country's confidence in the reliability of its nuclear command-and-control system. Thus, if there is any sign of possible cyber tampering against its command-and-control system, it might assume that the system could quickly become ineffective or unreliable. Under such circumstances, the decision-makers of the target country would have more incentive to pre-emptively launch their missiles, before the command-and-control system could be brought down, and they would lose the capability to ever launch the missiles. Thus, cyber interference of nuclear command-and-control systems increases the possibility of first use of nuclear weapons in a crisis. China should actively work with other NWS to reach a common understanding on the risks of such activity and the necessity to denounce it. While it is difficult to establish verification measures on this matter, countries should still make joint or reciprocal political commitments to this effect to counter worst-case-scenario thinking and to build mutual confidence.

Finally, when it comes to the maritime domain, China and the US must come to some common understanding about the operation of strategic nuclear submarines in China's coastal water. Although the 2010 US Nuclear Posture Review Report committed to "maintaining strategic stability" with China, there seems to be a disconnect between the US national decision-makers and the US military—especially the US Navy—on what to do with the emergence of China's SSBN fleet. At the operational level, the US Navy appears to be taking actions that can directly threaten the survivability of China's SSBNs. Such actions will incentivise China to employ destabilising operational postures for its SSBNs and to deploy massive general-purpose military capabilities to protect its SSBNs from American anti-submarine-warfare (ASW) operations. The risk of incidents will greatly increase, which can lead to serious escalations. Therefore, it is important that the political leaders of the two countries reach a common ground on addressing the risks regarding SSBNs operation and ASW deployment.

China has an interest in securing the survivability of its SSBNs in its coastal waters, e.g. the South China Sea, and the US has an interest in not having the Chinese deploy their SSBNs too close to the American west coast. Therefore, the US should consider promising to not pursue aggressive ASW against Chinese SSBNs in the South China Sea, and China can reciprocate by maintaining a modest SSBN operational strategy and not deploying them close to the American coast. While such measures are not easily verifiable from a technical point of view, even a political commitment can go a long way in reducing misunderstandings and building confidence about each other's strategic intentions.

## Conclusion

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Decades after China's founding leaders laid out the basic principles of the country's nuclear strategy, the country faces a radically different security environment in the second nuclear age. Efforts to preserve traditional doctrines and nuclear postures have been met with calls for change in accordance with new geopolitical and technological challenges. The rapidly growing economy facilitates nuclear establishment by making resources more easily available. There is increased temptation to build a comprehensive strategic capability, modelled after other nuclear powers. In this period of relatively high-speed nuclear modernisation, it will serve China well to make a persistent effort to seek strategic guidance to its nuclear development and deployment. Chinese civilian and military leaders should not lose sight of the fact that nuclear weapons offer important but *limited* security benefits. They are expensive weapons that serve only one goal: deterring nuclear attacks in the most extreme scenarios of national-security crises. However, they do not provide operationally useful capabilities beyond that. As China's so-called comprehensive national power—including its conventional military power—grows rapidly, the need to build an impressive military nuclear capability as a source of national pride and prestige is decreasing. It is time for China to (re)think its nuclear strategy and policy, ensuring that it is driven by a coherent and consistent strategic vision from the top down, instead of parochial and bureaucratic interests from the bottom up.

Chinese nuclear strategists face several fundamental questions. What should be the determining factor of the size and composition of China's future nuclear forces? Specifically, should the direction and pace of China's nuclear modernisation be determined by the goal to maintain mutual vulnerability (MAD) with potential nuclear rival(s)? If so, how does one incorporate new variables, such as missile defence and conventional precision-strike technologies, into the MAD equation? If these new non-nuclear technologies make it impossible for countries to agree on a basic framework for maintaining MAD amongst themselves, what should be the way out? China used to define the term 'strategic stability' quite broadly but has now become increasingly comfortable with using the much narrower and more feasible Western definition. Under new geostrategic and technological realities, how should China define strategic stability? Can it maintain strategic stability through unilateral measures that make both security and economic sense? Should China consider having substantive dialogues with others to find possible cooperative solutions?

Given the heightening call from the international community for nuclear arms control and disarmament, China must reflect on its arms-control policy. After

the first use of nuclear weapons by the US at the end of the World War II, China's founding leaders were genuinely interested in promoting nuclear disarmament as a foreign-policy goal, even after China obtained its own nuclear weapons in 1964. However, that initial faith in nuclear disarmament seems to have faded over time. As international security situations constantly evolve, Chinese leaders are embracing less idealistic and more realistic objectives. Domestically, the nuclear and security establishment has become more interested in maintaining the status quo, after decades of investment.

However, for its own benefit, China can no longer hide behind bigger nuclear powers and keep a low-profile approach towards arms-control. China's rise has made it a major power and global leader. Even with its slower economic growth rate, China is still estimated to surpass the US in GDP terms by 2030.<sup>xvii</sup> This major power status means that as a country sitting at the top of the international system, China's own interests in the future will be much more directly connected with the overall stability and security in the Asia-Pacific region and beyond. It is in China's interest that the world has less nuclear arms race and proliferation. Promoting arms control increasingly serves its national interests and will also contribute to non-proliferation efforts. Chinese nuclear strategists should, therefore, seriously consider this question: Is promoting nuclear arms control in Chinese interests; and if so, what role should China play?

China has been a long-time supporter of the nuclear arms-control approach, which legally prohibits the use of nuclear weapons first and then bans the production and possession of nuclear weapons (similar to the disarmament of chemical and biological weapons).<sup>xviii</sup> In October 2016, the First Committee of the UN General Assembly adopted a resolution to start negotiations in 2017: a legally binding instrument to prohibit nuclear weapons. Since this resolution is consistent with China's nuclear arms-control proposal, the country should consider finding a way to engage with it.

In recent years, the international civil society launched an unprecedented campaign to raise awareness on the humanitarian consequences of nuclear weapons and called for reducing their role in security. The thinking behind the humanitarian movement is in line with China's traditional view on nuclear weapons. Due to the horrific humanitarian consequences of nuclear weapons, China's founding leaders had reached the conclusion early on that nuclear weapons are not usable and should only serve the goal of deterring potential nuclear attacks by other countries. Their appreciation of the effect of the nuclear taboo also played an important role in driving China's unconditional no-first-use policy.<sup>xix</sup> It is now time for China to break bureaucratic inertia and assert its own leadership role in international nuclear arms control. The country can thus lead its own way and make its contribution to peace and stability in the second nuclear age.

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# Pakistan: Nuclear Weapons in Pursuit of Parity

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Husain Haqqani

Amongst the second nuclear-age powers, none worries the rest of the world as much as Pakistan does. Most nuclear weapon powers see their weapons of mass destruction as a means of maintaining the status quo and as deterrents to bad behaviour on the part of their enemies. Pakistan, on the other hand, developed its military nuclear programme primarily to advance its claim of parity with India and as a means to settle what it considers the unfinished business of the 1947 partition of the subcontinent. Pakistan's internal instability, its reputation as a terrorist incubator and its perennial conflict with India are all sources of concern for the international community.

“If nuclear weapons are acquired by countries whose governments totter and frequently fall, should we not worry more about the world's destruction than we do now?” Kenneth Waltz had once wondered, adding, “If nuclear weapons are acquired by two states that are traditional and bitter rivals, should that not also foster our concern?”<sup>i</sup>

For most observers, both concerns apply in Pakistan's case, the latter especially so in the context of India-Pakistan rivalry. As George Perkovich and Toby Dalton explained, “Simply put, Western deterrence theorists never contemplated a nuclear-armed adversary that tolerated or employed sub-conventional violence by proxy on the adversary's homeland” – a reference to Pakistan's continued support for terrorist militancy in disputed Jammu and Kashmir and against India in general.

In his 2012 book, *Eating Grass: The Making of the Pakistani Bomb*, Feroz Khan explains how Pakistan's nuclear programme is seen by the Pakistanis as an integral part of “the broad narrative of Pakistani nationalism.” According to this account, Pakistan's senior officials, young scientists and engineers overcame “perennial political crises” and “poor civil-military relations” because “they were unwilling to

allow India's strategic developments to go unanswered." For Pakistanis, nuclear weapons are not only an instrument of deterrence or even national security. They are "the most significant symbol of national determination and a central element of Pakistan's identity."<sup>ii</sup>

Khan cites the Pakistani narrative of "enduring rivalry and strategic competition with India" that, he says, turned bitter after several wars and crises. According to this narrative, "The last major war in 1971 resulted in humiliating military defeat and dismemberment of Pakistan, which simply reinforced its belief that its adversaries were determined to destroy the very existence of the new state. This perception united the nation state into a 'never again' mindset that found succor in the acquisition of a nuclear capability."<sup>iii</sup>

As a former senior officer in the Pakistan military's Strategic Plans Division, where he last served as a brigadier, Feroz Khan speaks with authority when he identifies the three important beliefs regarding nuclear weapons that define Pakistani strategic thought. "First, nuclear weapons are the only guarantee of Pakistan's national survival in the face of both an inveterately hostile India that cannot be deterred conventionally, and unreliable external allies that fail to deliver in extremis. Second, Pakistan's nuclear programme has been unfairly singled out for international opposition because of its Muslim population. This feeling of victimisation is accentuated by a belief that India consistently "gets away with" violating global non-proliferation norms. Third is the belief that India, Israel or the United States might use military force to stop Pakistan's nuclear programme. Today these three beliefs – nuclear necessity for survival, international discrimination against Pakistan, and danger of disarming attacks – form the centre of Pakistani strategic thinking about nuclear weapons," he writes.

Given these essentially political or ideological convictions, Pakistan's leaders—its "military, bureaucratic and scientific establishment"—remain committed to paying any political, economic or technical cost to reach or maintain their objective of a nuclear-armed Pakistan.<sup>iv</sup> The Pakistani nuclear weapons programme is said to be India-specific, and Pakistan is unlikely and unwilling to heed the concerns about nuclear weapons expressed by the rest of the world. The consensus in Pakistan is that the world does not understand its fears and aspirations in relation to India.

For a long time, Pakistan preferred to maintain ambiguity about its nuclear deterrence, avoiding official articulation of 'red lines' governing nuclear use. Pakistan has consistently refused to abjure 'first use' of nuclear weapons, based on its concerns about India's overwhelming conventional military superiority. In January 2002, Lt. Gen. Khalid Kidwai, long-serving Director of the Strategic Plan Division and virtual head of Pakistan's nuclear command structure, explained the circumstances that might lead Pakistan to the use of its nukes.

According to Kidwai, Pakistan might resort to the use of nuclear weapons if “India attacked Pakistan and conquers a large part of its territory; India destroys a large section of Pakistan’s land and air forces; imposition of a blockade to such an extent that it ‘strangles’ transportation of vital supplies and adversely affects the ‘war-waging stamina’ of the country; India pushes Pakistan into political destabilisation or creates large-scale internal subversion.”<sup>v</sup> Two additional red lines unofficially postulated by other Pakistani officers include Indians crossing the Line of Control (LOC) to an extent that threatens Pakistan’s control over Azad Kashmir and Indian attack on any of Pakistan’s power generation facilities or nuclear installations.<sup>vi</sup>

Given the India-centric nature of Pakistan’s strategic plans, Pakistan’s politicians and military officers seem to see nuclear weapons as “a way to deter future conventional war with India that might threaten further territorial losses or even the survival of the state.”<sup>vii</sup> Frustrated with Pakistan’s continued use of sub-conventional warfare—militancy in Jammu and Kashmir and terrorism throughout the region—as an instrument of trying to alter the status quo, the Indians have pondered conventional military options. Pakistan’s military leaders, on the other hand, have sought to maintain their sub-conventional option by invoking the prospect of first use of nuclear weapons to deter a conventional military threat.

Pakistan’s nuclear brinkmanship seems designed to persuade the rest of the world to pressure India into resolving the India-Pakistan disputes on Pakistan’s terms to prevent nuclear conflict and proliferation. The testing of *Nasr*, a very short-range ballistic missile that Pakistan claims can be used for launching battlefield nuclear weapons and reports that Pakistan was equipping its surface ships and diesel-powered electric submarines with nuclear tipped missiles exacerbated “the dangers of miscalculated, inadvertent or unauthorised use arising from delegated command and control.”<sup>viii</sup> They were also effective in scaring the US policymakers and some American scholars into arguing against policies that might constitute punishment for bad behaviour over supporting terrorists or undermining the international community’s effort to stabilise Afghanistan.

“The rivalry between Pakistan and India is driven by historical, political, religious, psychological and security factors,” Perkovich and Dalton argue while advancing the case for handling Pakistan with kids’ gloves. “On balance, it is arguably fair to say that the Pakistani security establishment bears a disproportionate share of responsibility for the conflicts and crises of the Indo-Pak relationship and the inability of diplomacy to normalise it. But this is not the whole story, and, in any case, the fact of the rivalry means that if Pakistan is destined to be forever isolated while India is embraced, Pakistan will be less inclined to take steps that would be in India’s and the rest of the world’s security interest.”<sup>ix</sup>

Such voices are, however, being drowned out by calls for Pakistan's isolation as a means of forcing its hand over terrorism-related policies. The Pakistani paradigm of seeking strategic advantage by persisting with sub-conventional warfare in the shadow of nuclear weapons and Pakistan's insistence on seeking parity with India seem to be marginalising it from the larger nuclear stability issues in the second nuclear age. The India–US nuclear deal and the US-backed efforts to secure Indian membership of the Nuclear Suppliers Group point to a path for India's acceptance in the global nuclear community. Even after obstructing India's entry to the NSG, with China's help, Pakistan still has no path forward for its own admission to the nuclear restraint and management regimes.

Pakistan's embrace of tactical nuclear weapons (TNWs) creates a new tier of security problems even as it ostensibly enhances security against a potential conventional military strike. It now has to deal with the heightened global concerns about an Islamist or Jihadist takeover of the Pakistani state, armed not only with strategic but also with tactical nuclear weapons. Although Pakistani policymakers and scholars dismiss such concerns, they nonetheless persist.

Pakistan began developing low yield, tactical battlefield nuclear weapons, such as the *Nasr* missile, to provide 'flexible deterrence options' in response to India's 'Cold Start' doctrine of conventionally striking back at Pakistan rather quickly in the event of terrorist attacks similar to the one in Mumbai in November 2008. *Nasr* proponents argue that by maintaining "a credible linkage between limited conventional war and nuclear escalation," the missile will deter India from carrying out its plan.<sup>x</sup>

Tactical weapons, like the *Nasr*, which has a short range of about 60 km, could be forward deployed near the Indian-Pakistani border, ready for access by field commanders in case of need. Giving field commanders quick access to nuclear weapons enhances operational readiness, but it also involves devolution of command and control to local commanders. It could pose the risk of unauthorised or unnecessary use,<sup>xi</sup> though Pakistanis point out that, so far, their track record in acting responsibly with nuclear weapons is impeccable.

According to Pakistani scholar Mansoor Ahmed, arguments about TNWs being inherently destabilising when deployed close to a border do not apply in Pakistan's case. "Such risks relate to questions of 'battle-space management, field security problems and the probability that India would preemptively attack the weapon systems once they have been flushed out of peacetime storage', coupled with the possibility of rapid nuclear escalation leading to all out nuclear war," he explains. Ahmed insists that challenges encountered in optimally deploying TNWs—referred to as the Goldilocks dilemma— in South Asia are not similar to those faced during the NATO–Warsaw Pact confrontation during the cold war. "Pakistan's situation

fundamentally differs from the NATO dilemma because Pakistan claims to retain centralised control over all strategic and tactical nuclear weapons at all times, whereas the deterrent power of NATO's position derived from decentralised control," he concludes.<sup>xii</sup>

In the absence of greater information about the centralised nature of Pakistan's control of tactical weapons, Ahmed's assertion is insufficiently reassuring. The security of TNWs and their delivery vehicles are said to be more problematic than strategic weapons systems "because of their relatively small size and portability."<sup>xiii</sup> Jeffrey Mccausland points to the inherent contradiction "between the requirement for ensuring warhead security in peacetime and survivability in a crisis and providing operational availability in wartime." Given that this issue was a major dilemma for the NATO force planners during the Cold War, it remains unclear how Pakistan is likely to resolve it amidst the almost fanatical ideological hatred of India amongst the rank and file of its military.

In his book, Brigadier Feroz Khan explains at some length the conceptual framework of Pakistan's arrangements for security of its strategic nuclear weapons without offering explicit details. He speaks of "physical safety mechanisms and firewalls both in the weapon systems themselves as well as in the chain of command." According to him, "No single individual can operate a weapon system, nor can one individual issue the command for nuclear weapon use. The NCA command and control system ensures that weapons can be operationally ready on short notice, yet unauthorised arming and/or use never takes place. Pakistan does not keep its nuclear weapons on hair-trigger alert. The nuclear weapons are few in number and probably kept in disassembled form; their components are reportedly stored separately at dispersed sites. Keeping the weapons in a disassembled form, along with the use of authorisation codes, reduces the risk of capture or unauthorised use."<sup>xiv</sup>

These arrangements are likely to be effective only in the case of strategic weapons. Khan's explanation that "Pakistan's arsenals are maintained in non-deployed form" might not necessarily extend to TNWs. According to Khan, Pakistan's National Command Authority "maintains centralised control of the assets and an elaborate system of security and the Security Division have installed safety measures that ensure the physical security of storage and transport."<sup>xv</sup> It is unclear, however, whether such elaborate and centralised controls could be applied once tactical nukes are available for deployment along Pakistan's 1800-mile border with India.

As Michael Krepon points out, nuclear risks will grow significantly in the event of another India Pakistan confrontation "since tactical nuclear weapons are the least safe and secure in Pakistan's arsenal and since these and longer-range nuclear-capable launchers will be moved around in the midst of a serious crisis." He

laments that “Pakistan’s military leaders seem unpersuaded by arguments that mixing tactical nuclear weapons into conventional battle plans is a lousy idea.”<sup>xvi</sup> What then, if anything, can be done to encourage Pakistan to change its military and nuclear doctrines?

“The perceived need to counter Indian regional hegemony and putative conventional military advantages became the foundational impulse behind Pakistan’s prior work on nuclear weapons,” Perkovich and Dalton explain. They note that “the impulse endures, now wrapped in a narrative that nuclear weapons are the sole element of national power that will not only even the score with India but also deter threats ranging from limited conventional war to existential conflict.” The allure of the nuclear bomb, they point out, has led Pakistan’s national security managers to compete with—and in some important measures, to outcompete—India on nuclear-weapon capabilities, even as Pakistan falls further and further behind India on nearly all other attributes of national power.

According to this view, “The weaker Pakistan becomes as a state, the more Pakistan’s military leadership in Rawalpindi seems to rely on nuclear weapons to bolster national security. And the weaker Pakistan becomes, the more the dangers associated with its growing stockpiles of nuclear weapons and fissile material will be compounded.”<sup>xvii</sup> The proposed way forward is often to somehow reassure Pakistan in relation to India, identify confidence-building measures and also figure out ways to help Pakistan be viewed as a ‘normal’ state possessing nuclear weapons.

**G**iven the link between Pakistan’s nuclear weapons and its sense of national identity, another approach could be to address Pakistan’s sense of self while addressing the challenge posed by its nuclear doctrines. Pakistan is a constructed ideological state, and not a historic nation-state; that’s what makes it unique in recent world history. Other ideological states—such as the communist and fascist ones—were all nations before adopting a totalitarian ideology. Russia adopted communism, Italy and Spain became Fascist, Germany was taken over by National Socialists. Russia’s communists expanded into ‘near-abroad’ to create the Soviet Union, but the expanded state’s core identity remained Russian. In Pakistan’s case, its national ideology defines its nationhood.

Most Pakistanis have a hard time defining themselves as a nation except in opposition to India through the prism of their religion-based ideology. A state that derives its legitimacy from competition with another is unlikely to be coerced, compelled or deterred in the same way as nations that could imagine themselves even without competing with others. Thus, in the case of the Soviet Union, nuclear weapons were just an instrument of power in the hands of the Soviets who were primarily Russians occupying what they saw as their geographic sphere of

influence. Russia felt threatened, and it threatened others in return. It could be persuaded to look at security options because the existence of threats was not integral to Russia's identity.

In Pakistan, the psychological need for real or imaginary threats from India to forge Pakistani national identity will not easily go away as a result of changes in India's policies or those of other nations. Pakistan needs to threaten India and feel threatened by it to maintain its national cohesion. That makes normal policy responses less likely to be effective. Only those measures that make Pakistan's civil and military leaders rethink Pakistani identity beyond an eternal state of competition with India could pave the way for rethinking on issues such as possession, deployment and security of nuclear weapons.

As recently as March 2016, Pakistan's Foreign Affairs Advisor Sartaj Aziz said, "India, not terrorism, is the biggest threat to the region" and asked India to reduce its nuclear stockpile so that Pakistan can consider reciprocation. The claim of India being the biggest threat seemed hollow, given that 40,000 Pakistanis have reportedly been killed or injured at the hands of terrorists over the last 15 years. Moreover, instead of offering talks on mutual nuclear reduction, Pakistan was only offering to *consider* reciprocation once India had already reduced its nuclear arsenal.

Pakistan's economy, its international relations and the ability of its citizens to travel abroad with ease have all suffered because of the country's pursuit of sub-conventional warfare and support of terrorism. Yet, the Pakistani government insists that India imperiled Pakistan more than terrorism, reflecting Pakistan's fixation with India, which US President George W. Bush once described as an "obsession."

Aziz said that Pakistan's nuclear arsenal was a major deterrent against India and "if they increase the stockpile, we cannot reduce ours." This stance—that one country's nuclear posture is tied solely to that of another—differs from that of all other major nuclear-armed powers. When the US first developed nuclear weapons and the Soviet Union, Britain, France and China followed suit, they did so on grounds of pursuing a global security role. The US dropped atomic bombs on Japan to end the second World War long before it was concerned about the Soviet Union.

India's nuclear programme also originated not out of a regional rivalry but from the argument that non-proliferation should be global. Either no one should have weapons of mass destruction or everyone has the right to have them. Pakistan's nuclear programme, on the other hand, is about contention with India. Pakistan developed, and continues to develop, nuclear bombs as a direct response to India,

nothing more and nothing else. 'Strategic stability' in South Asia requires a focus wider than that on nuclear weapons, one that results in Pakistan changing its national goal from being India's equal to being a strong, prosperous country within its own borders. Until then, nuclear escalation can be managed but not eliminated.

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# The Second Nuclear Age and the Korean Peninsula: What Needs to be Done

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**Chung-in Moon**

**D**uring the Cold War era, the Korean peninsula was relatively free of nuclear threats. Whereas North Korea had not yet ventured into a nuclear path, South Korea was under the American nuclear umbrella. Strategic stability was largely maintained. It was after the end of the Cold War that the North Korean nuclear crisis ensued. In 1991, the US withdrew its tactical nuclear weapons from South Korea not only because of George H. Bush's efforts to dismantle tactical nuclear weapons in the wake of the end of the Cold War, but also because of their limited military utility and the high costs of maintaining them. Upon the recommendation of Donald Gregg, the then US Ambassador to Seoul, President Bush also suspended the Team Spirit—a ROK-US joint military training—in 1992 to facilitate inter-Korean rapprochement. Consequently, inter-Korean relations significantly improved with the signing of the Basic Agreement on Non-aggression, Reconciliation and Exchange and Cooperation in 1992 and Pyongyang-Washington ties showed positive developments.

However, Dick Cheney, the then US Secretary of Defense, resumed the 'Team Spirit' military training in 1993 by arguing that Pyongyang was not trustworthy. North Korea responded to it by withdrawing from the Non-proliferation Treaty (NPT) and engaging in nuclear activities in Yongbyon near Pyongyang in the same year. Faced with such provocation, the US government deliberated on a surgical strike on the nuclear facilities in Yongbyon in May 1994, which was aborted by former US president Jimmy Carter's visit to North Korea and his deal with its supreme leader Kim Il Sung. The first North Korean nuclear crisis was eventually defused by the Geneva Agreed Framework signed in October 1994 between the US and DPRK, in which the former pledged to build two light-water nuclear reactors for the latter by

2003. In return, North Korea agreed to freeze its nuclear activities and eventually dismantle its nuclear facilities and materials.

The advent of the Bush administration (2001–08) drastically changed the nuclear equation in the Korean peninsula. Accusing the North of clandestinely acquiring a highly enriched uranium (HEU) programme, the US nullified the Geneva Agreed Framework in 2002 and dismantled the Korea Energy Development Organisation (KEDO), a multilateral organisation to build two light-water nuclear reactors.<sup>i</sup> This hardline US stance triggered the second nuclear crisis that continues till now. Initially, the Bush–Cheney team refused to have any direct talks with North Korea. However, Beijing, with the help of Seoul, was able to persuade the US to join the six-party talks as a mechanism to deal with the second North Korean nuclear crisis in 2003. After two years of stalled and tough negotiations, the six-party talks adopted the 19 September Joint Statement that stipulated an exchange of North Korea's dismantling of nuclear weapons for the removal of US hostile intent and policy on the North as well as peaceful co-existence and diplomatic normalisation with the North.

Such breakthrough did not translate to an effective denuclearisation of North Korea. American financial sanction on North Korea one day after the 19 September statement in 2005 was responded to by Pyongyang's first nuclear test on 9 October 2006. The six-party talks averted the crisis by reaching the 13 February agreement in 2007 in which Pyongyang agreed to get rid of its nuclear facilities and materials through the three stages of shutting down and sealing, disabling and irreversibly dismantling nuclear facilities, materials and weapons in return for the supply of heavy oil and implementation of the 19 September joint statement. However, North Korea's launching of rocket on 5 April 2009 angered the US, South Korea and Japan, and the six-party talks and the North Korean nuclear problem *per se* got stalled since then.<sup>ii</sup>

Whilst the six-party talks was derailed for the past eight years, North Korea has been strengthening its nuclear arsenal. The North is now estimated to have acquired more than 20 nuclear warheads and to have steadily amassed nuclear materials, both plutonium and HEU. It has also undertaken six rounds of nuclear testing and is in possession of a wide variety of delivery vehicles ranging from short-range SCUDs and intermediate-range Nodong and Musudan to submarine-launched ballistic missiles. On 29 November 2017, North Korea successfully test-launched Hwasung 15 ICBM that can threaten the US mainland, and declared the completion of its own nuclear weapons system. More importantly, North Korea has virtually declared itself as the ninth nuclear weapons state in the world and claims to have diversified nuclear warheads (i.e. PU and uranium) as well as succeeded in miniaturising and standardising them.

## Pyongyang's Motives for Nuclear Ambition: The Beginning of the Second Nuclear Age?

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North Korea's behaviour signals the arrival of the second nuclear age as it realises nuclear weapons are a vital element of statecraft and power politics.<sup>iii</sup> North Korea justifies its possession of nuclear weapons for a minimal nuclear deterrence. For the North Korean leadership and its ordinary citizens, the fear of an American nuclear attack is not contrived, but real. They believe that the US has plans to stage nuclear attacks on the North and the only way to deter them is to arm itself with nuclear weapons for second-strike capability. North Korea's logic of nuclear deterrence has been further crystallised as a result of American actions since 9/11. President Bush's labelling of North Korea as part of an "axis of evil" and a "rogue nation" intensified its threat perception. In addition, the US adoption of the preemption doctrine and the removal of Saddam Hussein and Muammar Qathafi by force appear to have led North Korean policymakers to rely on nuclear weapons as a deterrent force.

There is another dimension to North Korea's logic of nuclear deterrence, and that is to manage its growing inferiority in conventional arms race with the South. The widening gap in conventional forces between the North and the South has been an inevitable outcome of the rapidly growing disparity in their economic and technological capabilities. While the South has emerged as the 12th largest economy in the world, greatly facilitating its defence build-up, the North's continued poor economic performance is reflected in its slower military build-up. As of 2015, South Korea's economic size was 30 times larger than that of North Korea and the latter's defence spending in the same year is reported to have been only one-tenth of South Korea.<sup>iv</sup> Thus, North Korea's attempt to possess nuclear weapons can be interpreted as a calculated move to make up for its weakness in the conventional forces by pushing for a non-conventional, asymmetric force build-up via weapons of mass destruction and missiles. This provides a less expensive path of offsetting the growing gap in conventional forces, blurring the distinction between conventional and nuclear force.

North Korea's nuclear venture also seems to be closely associated with the politics of regime survival, coalition-building and international recognition.<sup>v</sup> Kim Jong-un's legitimacy stems from his succession of political leadership from his grandfather Kim Il-sung and father Kim Jong Il, as well as from his role as the guardian of North Korea and its people from the American military threat. Since his political ascension in 2012, Kim Jong-un has championed '*byongjin roseon*' (simultaneous pursuit of economic development and nuclear weapons) as his governing ideology. Whereas economic development is to win hearts of the people, nuclear weapons

are to assure its regime survival, co-opt the military and enhance its international recognition. Thus, such line appears to satisfy several domestic political purposes. It not only enhances Kim Jong-Il political legitimacy by materialising the vision of a strong and prosperous great nation, but also serves as a vehicle for consolidating his political power through the co-optation of the military. With the added benefit of enhancing its international status and prestige by joining the elite group of nuclear states, the possession of nuclear weapons can strengthen Kim's domestic rule.<sup>vi</sup>

Finally, North Korea appears to regard nuclear weapons as a valuable asset for two reasons. One is as bargaining leverage for economic and other gains from the US and the other is as a tool for export earnings. As the 1994 Geneva Agreed Framework demonstrated, the North was able to win lucrative economic and energy concessions, such as two light-water nuclear reactors, supply of heavy oil and other forms of economic assistance in return for freezing its nuclear activities and return to the NPT. Although such concessions did not fully materialise, Pyongyang learned that the nuclear weapons card can be utilised as a powerful bargaining leverage in obtaining economic and energy gains. Moreover, the North has been using the nuclear card to draw the US' attention, so that it can enter into dialogue and negotiation with the US. In addition, it should not be ruled out that the North may consider using nuclear weapons and related materials for generating desperately needed hard currency. The latter possibility appears highly unlikely because of the hostile international environment against proliferators of weapons of mass destruction. Nevertheless, its track record on the export of missiles and other military weapons shows that Pyongyang is capable of and willing to transfer nuclear materials for export earnings.

## A Nuclear North Korea and its Security Impact

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**T**he security impacts of a nuclear North Korea are quite worrisome.<sup>vii</sup> A nuclear North Korea is not compatible with peace-building on the Korean peninsula because it would not only pose formidable non-conventional threats to the South, but also fundamentally alter the inter-Korean military balance. Under these circumstances, peaceful co-existence between the two Koreas is highly unlikely, and conventional and non-conventional arms races between the two will intensify. Equally critical are the negative consequences of crisis escalation. If the North Korean nuclear problem cannot be resolved through peaceful means, the use of coercive measures including military options might become unavoidable. Such developments would incur massive collateral damage to the South. Given the military force structure along the DMZ and the massive deployment of non-symmetric forces such as missiles, any preemptive North Korean military

provocation or allied forces' military action and subsequent North Korean counter-attacks on the South will certainly escalate into a major military conflict on the Korean peninsula. Estimates of war casualties would exceed half a million at the initial stage of a full-scale war, as presented by William Perry and Ashton Carter.<sup>viii</sup> If the North attacks the South with its nuclear weapons, the collateral damage would be much higher since most military facilities, including American military bases, are located in urban areas.<sup>ix</sup>

What could be even more troublesome is a nuclear domino effect in Northeast Asia. North Korea's nuclear venture can easily precipitate a nuclear arms race with the South that bears nightmarish implications for regional security. Facing new threats from North Korea, Japan may well justify a move into becoming a nuclear power.<sup>x</sup> After all, Japan has the financial and technological capability, and has already amassed a stock of 40.6 metric ton of plutonium.<sup>xi</sup> Its transformation into a nuclear power would simply be a matter of time. Taiwan could join the nuclear camp too, which would in turn foster China's nuclear build-up. The nuclear domino effect, set off by North Korea's nuclear ambition, can trap the entire Northeast Asian region in a perpetual security dilemma far worse than that of the late 19th century.

Finally, a nuclear North Korea can also threaten global security. The North is reportedly able to produce small nuclear bombs which are hard to detect and easy to sell to others. Given North Korea's past behaviour, which includes transfer of missiles and components as well as the smuggling of drugs, counterfeit currencies, tobacco and alcohol, there is a growing concern regarding the transfer of nuclear materials, especially plutonium, to global terrorists and rogue states. As 9/11 clearly demonstrated, world-wide proliferation of nuclear materials can endanger not only the US and Europe, but also the entire world. In addition, failure to block the advent of a nuclear North Korea can critically damage the existing Non-proliferation Treaty (NPT) regime by tempting other states to follow a similar suit.

## South Korea's Response: Another Nuclear Weapons State?<sup>xii</sup>

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**H**ow should the North Korean nuclear quagmire be managed? Attention is currently on international and individual sanctions, which are based on the logic of crime and punishment. According to proponents of this strategy, North Korea's crime (i.e. possession of nuclear weapons and violation of UN resolutions) should be punished by comprehensive and forceful sanctions. They believe such sanctions can cause an immense fear to the North that could compel its leader

Kim Jong-un to choose the path toward denuclearisation. Otherwise, he would risk regime collapse. It should be kept in mind, however, that sanction as a way of bringing the North to the negotiation table might work, but sanction for the sake of sanction or regime change would only backfire. “The harder external pressures are, the more defiant its behaviour is.” That has been its typical behavioural pattern. North Korea is not Iran, it is still a closed society and very much accustomed to sanctions. And China is not likely to enforce sanctions that would undermine stability in the North and collapse its regime. More importantly, the idea of linking sanctions to regime collapse, which is commonly shared in Seoul, Washington and Tokyo, seems presumptuous and even faulty.

While sanction and pressures have remained ineffective, North Korea has conducted six rounds of nuclear testing and a series of missile tests. Many South Koreans felt helpless, frustrated, even outraged. According to various opinion polls, after the fifth nuclear test in September 2016, more than 70 percent of respondents favoured South Korea’s independent nuclear weapons development. Such pro-nuclear attitude is not confined to the general public. Some political leaders and intellectuals also openly advocate the nuclear option. Chung Mong-joon, a prominent conservative politician and the founder of the Asan Institute, has been one of the most vocal advocates of “go nuclear.” He has urged the United States to redeploy its tactical nuclear weapons in South Korea as a signal to North Korea and possibly as a first step toward de-stigmatising nuclear weapons among the public. Should the United States not re-introduce nuclear weapons in South Korea, then he contends that it should develop its own nuclear weapons and “temporarily” withdraw from the Non- Proliferation Treaty. *Chosun Ilbo*, the most influential conservative daily newspaper in South Korea, has also campaigned for the nuclear cause. A large number of conservatives and nationalists alike have aligned with nuclear armament. In short, there is a growing support for this radical shift in the ROK’s political and military posture at popular and elite levels.<sup>xiii</sup>

Admittedly, some conservatives have pushed this idea hard to win over public support. But the trend of public opinion showing high levels of support for a ROK nuclear force is secular and consistent, especially since the DPRK tested its first device in 2006. And when asked if they were willing to end the alliance with the United States if that was the price to pay for an independent ROK nuclear force, many will reverse their position. Also, nationalist aspiration to gain nuclear weapons status may also be tied to fears of entanglement in or abandonment by the United States as it “rebalances” its military forces in the region, with significant impacts on conventional extended deterrence in the US-Korea alliance. Nonetheless, it is important to address the issues raised in a systematic appraisal of the pros and cons of going down this path, not just dismissing it as a chest-thumping political rhetoric by opportunistic politicians.<sup>xiv</sup>

As soon as South Korea declares a nuclear weapons campaign, it will face strong headwinds. Its nuclear power industry—which runs entirely for commercial use—would be ruined, as would its traditional alliance with the United States. The Korean economy would head into a tailspin and risk being slapped with international sanctions. Moreover, South Korea going nuclear could be a tipping point in a nuclear domino in Northeast Asia. To use nuclear programme as leverage over North Korea and China is equally unrealistic. Seoul does not even have the operational control of its forces during wartime. It would only give an excuse for the conservatives in Japan to pursue military reinforcement. Thus, South Korea arming itself with nuclear weapons cannot be an ideal solution.

## Wrong Message from the US

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Most in South Korea would not favour the nuclear option if it undermines Seoul-Washington alliance. Fear of losing alliance with the United States has been one reason why they were hesitant in pushing for domestic nuclear weapons' development in the past. But recently, a wrong message has come from the US. Elbridge Colby, a fellow at the Center for a New American Security, argued in the March 2014 issue of *The National Interest* that the United States should “Choose Geopolitics Over Nonproliferation.”<sup>xv</sup> Colby contends that the ultimate goal of the US foreign policy is not non-proliferation but “protecting Americans’ security, liberty and prosperity through moral means.” He argues that nuclear non-proliferation should not be regarded as *summum bonum* and that the scenarios regarding nuclear-armed South Korea and Japan must be evaluated purely on strategic gain and loss, opportunity and risk to the US national interests before deciding whether it would support either country going nuclear.

Colby holds that it is unreasonable to scrap an alliance solely based on the standards of non-proliferation. Taking into account the weakening US security commitment in the region, he contends that maintaining the alliances and utilising nuclear-armed South Korea and Japan as potential US power assets would be more advisable. He concludes that because the US has insufficient power to stop Japan and South Korea from realising their nuclear ambitions, if it blindly adhered to the traditional non-proliferation line, it would lose the proliferation game *and* its allies. Worse are US President Donald Trump’s past remarks during the election campaign. He alluded that it would be all right for Japan and South Korea to arm with nuclear weapons to deal with the North Korean nuclear threats. Such views have given new hope to the South Korea’s conservative pundits by hinting that alliance and nuclear weapons’ possession might be compatible.

## Avoiding a Second Nuclear Age in the Korean Peninsula

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The worst aspect of the second nuclear age in Northeast Asia is a nuclear domino phenomenon.<sup>xvi</sup> North Korea's acquisition of nuclear weapons is bound to produce a nuclear chain reaction in the countries of the region. It is in this context that denuclearisation of North Korea emerges as the utmost task.

However, positive developments have taken place in the peninsula since January 2018. On the occasion of the PyeongChang Winter Olympics, North and South Korea began to engage, resulting in the April 27 Panmunjom inter-Korean summit. Improved inter-Korean relations also facilitated the first historic summit between President Trump and Chairman Kim Jong-un in Singapore on 12 June 2018. During both summits, leaders of South and North Korea and the United States agreed to materialise a nuclear weapons-free Korean peninsula through a complete denuclearisation. As a token of his commitment, Chairman Kim proactively demolished the nuclear test site in Punggye-ri and dismantled parts of ballistic missile engine test site and launching site in Dongchang-ri.<sup>xvii</sup> At the Korean summit held in Pyongyang in September 2018, Chairman Kim even went further by pledging to dismantle nuclear facilities in Yongbyon permanently. Complete denuclearisation of North Korea is no longer fictional, but is becoming a reality.

Nevertheless, the path to denuclearisation of North Korea seems turbulent, given the sharp difference between the US and North Korea in pursuing denuclearisation. Whereas the US demands "denuclearization all in one and at once" as well as "dismantle first, reward later," North Korea favours incremental denuclearisation and simultaneous exchange based on the principle of "action for action." Moreover, Washington has been firm on the principle of "no relaxation of economic sanctions without a complete denuclearisation." Meanwhile, Pyongyang has been calling for the easing of economic sanctions in the process of denuclearisation. Such gap has been dragging the process of negotiation between the US and North Korea.

It is desirable that the US is no longer deliberating on military actions and that dialogues and negotiation have become the option. However, there is a need to think about more innovative ways to overcome the current stalemate.

First, a clear message must be sent to North Korea. Denuclearisation, regime change, human rights and cyber security are important issues, but in no way the North can accommodate all those demands. They need to be prioritised. Clearly, denuclearisation should be the top priority and other issues can rather be easily resolved when and if the nuclear problem is settled first. Frankness is crucial, too: the international community must speak their mind and also hear out Pyongyang

to find mutually acceptable solutions. Being deaf to the North and insisting on unilateral preconditions cannot lead the world to an exit. Portraying the North as an “untrustworthy, rogue state” would only re-enforce an asymmetrical perception, hindering meaningful dialogues and negation.

Second, pragmatism calls that the goals for negotiations must be adjusted in tune with the circumstances. The reality is that North Korea cannot be forced to completely dismantle its nuclear weapons and facilities in a short time. Instead, a moratorium should be imposed on the nuclear programme to prevent further progress and production of nuclear materials. Pyongyang repeatedly said it would cease nuclear activities if its terms were met. In this regard, Dr. Siegfried Hecker’s step-by-step approach of “no use, freeze, roll-back, and verifiably dismantle” might provide a viable exit strategy. Practical ways to resolve the North Korean nuclear conundrum might be found in the existing agreements such as the 19 September joint statement of 2005, the 13 February agreement of 2007 and the Leap Day agreement of 2012. The six-party talks are still useful, and they should be resumed without any delay.

Third is flexibility: all the possible cards must be put on the table, including a temporary halt to Korea–US joint military drills, replacement of armistice with a peace treaty, allowance of North Korea’s peaceful use of atomic energy and space/satellite programme and diplomatic normalisation between the DPRK and the US. These options should not easily be dismissed just because they are being demanded by Pyongyang. While addressing issues through dialogue, Pyongyang’s intentions could be probed, and it can be held responsible for any breach of faith. Moreover, economic sanctions need to be more flexibly utilised. When and if North Korea is willing to denuclearise in a bold manner, such behaviour should be rewarded with corresponding relaxation of sanction measures.

Finally, the North Korean nuclear problem is embedded in the structure of Korean conflict. Thus, it is not easy to resolve it without addressing peace and stability in the Korean peninsula. In this regard, creating a peace regime in the Korean peninsula that includes normalisation of relations between North Korea and the US becomes an essential step. It should also be noted that a peace regime in the Korean peninsula would be inconceivable without shaping a comprehensive regional security arrangement involving a multilateral security cooperation mechanism. Along with this, attention should also be given to the establishment of a Northeast Asia Nuclear Weapons Free Zone.

## Endnotes

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- i. In accordance with the 'Agreed Framework' of Geneva, KEDO was supposed to complete the construction of two light-water reactors in Shinpo by 2003. More than 50 percent of the entire construction process was completed by mid-2002. By then South Korea had spent US\$1.14 billion for the Shinpo project as the largest donor.
- ii. Chung-in Moon, *The Sunshine Policy: In Defense of Engagement as a Path to Peace in Korea* (Yonsei University Press, 2012), 103–114.
- iii. Paul Bracken, *The Second Nuclear Age: Strategy, Danger and New Power Politics* (New York Times Book, 2015) 189–214.
- iv. In terms of manpower, North Korea (1.2 million soldiers) was superior to South Korea (630,000 soldiers) in 2014. But Pyongyang is far inferior to Seoul in terms of defence spending. For example, an average annual defence spending of South Korea during 2004–14 was US\$3.5 billion, whereas that for North Korea was a meager US\$301 million during the same period. In addition, South Korea is one of the top five buyers of weapons in the world whereas North Korea reveals no such record. See US Department of State's World Military Expenditure and Arms Transfer, Washington D.C., 2016.
- v. Chung-in Moon, op. cit., 79–116.
- vi. Some conservatives in South Korea and the US argue that one of primary motives behind North Korea's nuclear ambition is to realise its goal of 'communising South Korea' from the position of strength.
- vii. Bruce Bennett, "Avoiding the Peacetime Dangers of North Korean Nuclear Weapons," *IFANS Review* 13, no. 2 (December 2005): 30–37.
- viii. Ashton Carter and Williams Perry, "Preventive Defense: A New Security Strategy for America," ch.4, Brookings Institution Press, 1999.
- ix. Bruce Bennett, op. cit., 32–34.
- x. Former Prime Minister of Japan, Nakasone Yasuhiro, claimed that Japan should deliberate on having nuclear weapons for defensive purpose. *Yonhap News*, 7 January 2004.
- xi. Ohmynews, 3 February 2006.
- xii. This section draws partly from "Korea: Will South Korea's Non-Nuclear Strategy Defeat North Korea's Nuclear Breakout?" by Peter Hayes and Chung-in Moon, in *The War that Must Never be Fought*, eds. George Schultz and James Goodby (Stanford: Hoover Institution Press, June 2015), 377–435.
- xiii. D.J. Kim, "S Korea needs to consider acquiring nuclear weapons," *Chosun Ilbo*, 10 July 2012; G.J. Cho, "South Korea's Nuclear Armament for Self-Defense: Secret Story of Israel's Clandestine Nuclear Weapons Development," *Monthly Chosun*, February 2011; Mong-Jun Chung's remarks: "The nuclear deterrence can be the only answer. We have to have nuclear capability," in K. J. Kwon, *Under Threat*,

*South Koreans mull nuclear weapons*, CNN, 18 March 2013, <http://www.cnn.com/2013/03/18/world/asia/south-korea-nuclear/> On redeployment of US tactical nuclear weapons; "Unwanted Decision' should be made for the protection of the country and people," Editorial, *Chosun Ilbo*, 13 February 2013; *Chosun Ilbo*, 20 February 2013.

- xiv. It is interesting to note that the military in South Korea does not explicitly support the nuclear armament primarily because of learning effects from President Park Chung-hee's aborted attempt to develop nuclear weapons clandestinely in the 1970s. Senior military officials fear that South Korea's pursuit of nuclear weapons can cost its military alliance with the US.
- xv. E. Colby, "Choose Geopolitics Over Nonproliferation," *The National Interest*, 28 February 2014, <http://nationalinterest.org/commentary/choose-geopolitics-over-nonproliferation-9969?page=6>.
- xvi. There could be two other possibilities. One is the modernisation and strengthening of Chinese nuclear forces, especially in the context of the US rebalancing strategy and the deployment of US Terminal High Altitude Area Defense (THAAD) in South Korea and the other is the Japan's independent pursuit of nuclear weapons. Both cases can also trigger nuclear domino in the region.
- xvii. See Chung-in Moon, "A Miracle in a Day: The Moon-Kim Summit and Prospects for Peace in Korea," *Global Asia* 13, no. 2 (June 2018). [https://www.globalasia.org/v13no2/feature/a-miracle-in-a-day-the-moon-kim-summit-and-prospects-for-peace-in-korea\\_chung-in-moon](https://www.globalasia.org/v13no2/feature/a-miracle-in-a-day-the-moon-kim-summit-and-prospects-for-peace-in-korea_chung-in-moon); On the Singapore summit, see Chung-in Moon, "There were no losers at the Singapore Summit-What Critics of the U.S.-North Korean Meeting Get Wrong," *Foreign Affairs*, 19 June, 2018. <https://www.foreignaffairs.com/articles/north-korea/2018-06-19/there-were-no-losers-singapore-summit>.



# Emerging Challenges to Deterrence in the Asia Pacific

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**Yukio Satoh**

Japan stands at a unique position on the question of nuclear weapons. As the first and only victim of nuclear explosions in the world, it has the singular standpoint from where to lead efforts in moving towards the elimination of nuclear weapons. Reflecting its people's strong anti-nuclear weapons sentiment, Japan has long been committed to the 'Three Non-Nuclear Principles' regarding nuclear weapons: not possessing, not producing, and not permitting their entry into its territory. This is a significant contribution to the cause of nuclear non-proliferation.

However, exposed to potential nuclear threats from USSR/Russia and China, Tokyo has been dependent upon the US nuclear umbrella to deter nuclear threats. North Korea's nuclear weapons and missile development has prompted Japan to further strengthen defence cooperation with the US, instead of trying to develop an independent nuclear deterrence. Japan's increased defence cooperation would ensure the US' commitment to extend deterrence.

Unlike the European members of the North Atlantic Treaty Organization (NATO), Japan does not consider it necessary for the US to deploy nuclear weapons to make its commitment credible. For Japan, the US extended nuclear deterrence remains credible, so long as its nuclear forces as a whole are capable of deterring any potential nuclear threats.

With particular focus on the US extended deterrence, this paper discusses three issues from a Japanese perspective: Changes in strategic relations among the US, Russia and China; North Korea's nuclear weapons and missile development; and the Japan-US alliance.

President Donald J. Trump's policy might change the conditions surrounding the Japan-US alliance. However, at the time of writing this paper, the new administration's security and foreign policy—let alone its nuclear strategy and posture—remained to be decided.<sup>i</sup>

## Changes in Global Strategic Relations

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The rise of China has begun to change the strategic balance among major nuclear powers, from a bipolar one between the US and the Soviet Union/Russia to a combination of three sets of bilateral strategic relations: the US–Russia, the US–China and Russia–China. If the post-Cold War proliferation of nuclear weapons has ushered in the so-called “second nuclear age,” emerging tripartite strategic relations can lead to yet another phase of the nuclear age.

The US–Russia relationship is of central importance for both global strategic stability and nuclear-arms reduction. The Cold War notion of “mutually assured destruction (MAD)” seems to be still underpinning, if tacitly, the strategic stability between the two nuclear superpowers. Although MAD is no longer tenable in post-Cold War geopolitics, the Russians regard it as a basis for strategic stability with the US. To them, a perceived nuclear parity with the US is vital for a superpower status equal to it, and the notion of MAD is a palatable testimony to it. Moreover, in sharp contrast to the bipartisan American policy of reducing the role of nuclear weapons in deterrence strategy, Russia is increasing reliance on nuclear weapons anew.

Washington has been refraining from developing new nuclear warheads and trying to maintain the effect of nuclear deterrence by extending the life of existing nuclear warheads and improving systems to carry them. The US is also replacing ICBMs’ multiple warheads with single ones for the sake of strategic stability. In contrast, Russia is reported to have been developing new ICBMs with MIRVed warheads, a new generation of nuclear submarines to carry new SLBMs and shorter-range missiles.

It is unlikely that Moscow’s attempts will give Russia any tangible strategic advantage over the US, beyond the already-attained level of MAD. However, the Russians seem to think differently. President Vladimir Putin reportedly said, in December 2016, that Russian nuclear forces should acquire the capability to “reliably penetrate any existing and prospective missile defence systems.” Additionally, Moscow is trying to maintain strategic superiority over China, which is engaged in the expansion of military power. Russia’s reported violation of the INF treaty to acquire ground-launched cruise missiles (SSC-8) might have been aimed at closing the gap between the two countries in this category of missiles. Politically, President Vladimir Putin might want to gain advantage and appeal to the Russian public opinion by making Russia’s nuclear forces stronger than the American and the Chinese combined.

In the Asia-Pacific region, however, Russia's increasing nuclear forces have not drawn much attention so far. Tokyo remains convinced that an overall state of mutual deterrence between the US and Russia ensures the US extended deterrence. Russia's profile in the region has been overshadowed by China since the collapse of the Soviet Union. However, in recent years, Russia's strategic attention has shifted back to Asia, seemingly to hedge against the growth of Chinese military power and also to restore its strategic position in the Pacific vis-à-vis the US.

In 2010, Moscow established the Eastern Military District and the Eastern Joint Strategic Command. In the last two years, two of Russia's three newly launched submarines with new SLBMs were assigned to the Pacific fleet. Since 1999, Moscow has been wary of the Chinese survey vessel's repeated passage through the Sea of Okhotsk on its way to and from the Arctic Ocean. Strategically, Russia regards the Sea of Okhotsk as its inland sea. In 2016—ostensibly with the aim of strengthening the defence of the Sea of Okhotsk—Russia deployed ground-to-sea ballistic missiles on two of the islands, disregarding Japan's protest. Japan considers the islands—kept under Russian control ever since Soviet forces occupied them in the last weeks of World War II—as part of its own “Northern Territories.”

The Russians are also concerned about the vulnerability of Eastern Siberia and the Far East to Chinese influence. In these regions—far from the European part of Russia and bordering on far more populous Chinese provinces—the Russian population is diminishing and local economies are struggling. President Putin therefore created in 2012 the Ministry for the Development of Russian Far East. He hopes for Japan's cooperation for economic development in these regions. While Japan is prepared to cooperate with Russia for infrastructural, medical and economic improvements, its enthusiasm will depend greatly upon how Moscow responds to Japan's longstanding goal of recovering the Northern Territories.

Of the three bilateral strategic relations, the US–China one is most complex and still evolving. China is an important player in world economy and a driving force of its growth. To the US as well as Japan, for example, China is an important partner for economic interdependence and political cooperation. China, too, would need stable external relations, particularly those with the US, to cope with many difficult problems at home.

However, China's military expansion and increasing assertiveness are matters of serious security concern in the region, where the presence of US forces has long been regarded as an indispensable stabiliser. Although China's long-term strategic goal is a subject of speculation, its current strategy, which the Americans call “Anti-Access and Area-Denial (A2/AD),” seems to be aimed at denying US forces access to the areas essential to protect what Beijing considers the country's “core interests,” e.g. Taiwan. To this end, Beijing initially sought to equip itself with an asymmetrical

force posture, focusing on space and cyberspace. However, it is now expanding military power in all areas, including nuclear forces.

Beijing has reportedly shown little interest in a strategic dialogue with Washington, perhaps because nuclear-force balance is not of central importance for the US–China relation. Beijing also regards opacity as an intrinsic part of its strategy. Consequently, it is not clear if China believes in the concept of mutual deterrence. Washington, too, is undecided on whether it would accept or reject the concept of mutual deterrence with China.

Currently, China seems to be trying to further strengthen its military power, including retaliatory nuclear forces, before exploring the type of strategic relationship it would want with the US. Beijing’s A2/AD strategy could be a step towards its long-term goal of challenging US supremacy in the Asia-Pacific region.

President Xi Jinping once proposed building “a new model of major countries relationship” with the US. Earlier, he had also stated that the vast Pacific Ocean had “enough space for the two large countries of China and the United States.” However, these statements are too broad to indicate what China wants in its strategic relations with the US. More fundamentally, the Chinese share the notion that their country will eventually become number one in the world. Such a notion is not far-fetched in light of the country’s long history.

While this worldview is unlikely to manifest in China’s short-term strategy, in the longer run, the Chinese pursuit of primacy will pose an unprecedented challenge to the US, whose national creed is also to remain strongest in the world. The issue could be obscured by differences in the time span that frames the two countries’ strategies. The Chinese strategic approach is much more long-term than the US’, which is often revaluated every four years.

It is likely that the US–China strategic relations will continue to evolve, building upon the interactions between the two countries, not only in the military area but also in non-military areas, where the two countries will contest for influence. Such areas of contest include trade and finance, diplomacy, international order, climate change, development assistance, democracy and human rights. Unlike the US–Russia strategic stability, which is based upon nuclear parity (or the notion of MAD), it is necessary to see what would be regarded as “strategic stability” in the US–China relations in a much broader context than nuclear-force balance. Moreover, the emerging tripartite structure of strategic relations can add to difficulties in defining ‘strategic stability’.

It is important to note in this context that despite a deep-rooted mutual scepticism, Russia and China share one common goal: to undercut the US’ position as the sole

superpower. Their shared penchant for a multipolar world allows the possibility that the two countries might strategically cooperate against the US. The Japanese, therefore, look at strategic balance among the three countries with apprehension about the possibility of Russia–China strategic cooperation.

For example, while the US might consider 1,000 deployed strategic nuclear warheads sufficient to deter both Russia (with 1,000 warheads) and China (with 300 warheads), the Japanese would possibly worry that 1,300 warheads in the hands of Russia and China might together overwhelm the American 1,000. Surely, the number of warheads alone cannot determine a state of strategic balance. However, figures can easily affect public perceptions about the credibility of US' extended deterrence.

The corollaries of China's military expansion are its attempts to enforce its territorial claims in the East and South China Sea. Strategically, these Chinese actions are seemingly aimed at bolstering its A2/AD strategy by expanding a zone for unfettered sea and air operation of Chinese forces. On the edge of the East China Sea, Japan is at the forefront of what it calls "grey-zone" contingencies, which are neither peace nor war.

Japan's coastguard vessels have been foiling Chinese attempts to deny Japan control over the "Senkaku" islands (which the Chinese call "Diaoyu Dao"). China almost constantly dispatches official vessels as well as fishing boats to the areas around the islands. It is Japan's own responsibility to defend its territories, and to engage coastguard vessels to the end is key to keeping the contingencies within the realm of law enforcement and preventing an escalation to war.

However, to make their operations effective in relation to China, it is vital to ensure that coastguard operations are backed by the Japanese Self-Defence Forces and, as necessary, by the Japan–US defence cooperation, which would ultimately be linked to the US nuclear umbrella.

Washington and Tokyo have hitherto taken two important steps to this end: Washington has repeatedly affirmed that the Japan–US Security Treaty covers the Senkaku Islands, signifying Washington's recognition of Japan's control of the islands; and the Guidelines for Japan–US Defence Cooperation (2015) stated that the two governments would take measures to ensure Japan's peace and security "in all phases, seamlessly, from peacetime to contingencies," making it clear that "grey-zone contingencies" are within the purview of the two countries' defence cooperation.

Chinese unlawful attempts to enforce its territorial claims in the South China Sea, too, could have serious implications for the extended deterrence that the US

provides to its Asian allies. As noted earlier, such attempts are seemingly aimed at expanding a maritime zone for the unfettered operations of Chinese forces. The ASEAN countries have so far failed to stand together against Chinese actions, despite a ruling of the International Tribunal at The Hague that denied Chinese claims. There are various reasons for this, including the propensity of most ASEAN countries to avoid direct confrontation with a neighbourly China.

It is, therefore, important for the US to dispatch naval vessels and military aircraft to the South China Sea, not only to ensure the freedom of navigation and flight in and above the high seas, which is vital for international trade, but also to deny the legitimacy of Chinese actions. For his part, Japanese Prime Minister Shinzo Abe is taking leadership—together with the like-minded leaders of ASEAN and other countries—in underscoring the importance of a rules-based international order and solving territorial disputes peacefully according to international law. Japan is also expanding assistance to help the ASEAN countries strengthen their capacity for maritime safety.

Australia and India, with their growing naval capabilities and firm commitment to a rules-based international order, should be able to work for the common cause of ensuring the freedom of navigation and flight, in and over the South China Sea.

## North Korea

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**N**orth Korea's nuclear weapons and missile development is a product of the isolated regime's desperation and has a unique feature of constantly progressing despite the pronounced opposition of all the three major nuclear powers: the US, China and Russia. It is widely held that China has the strongest leverage on Pyongyang among the countries concerned. However, Beijing has refrained from cornering Pyongyang, allegedly due to concerns that North Korea's collapse might incur not only the influx of refugees but also an expansion of US force presence to its borders.

The UN Security Council's resolution 2321 would, if fully implemented, considerably reduce Pyongyang's funds for nuclear weapons and missile development. However, without more earnest cooperation from China than before, the new resolution will not work effectively. China's recent decision to suspend import of coal from North Korea until the end of 2017 is encouraging in this context.

At the same time, Beijing has been pressing Seoul not to agree on Washington's plan to deploy the US ballistic missile-defence system, THAAD (Terminal High

Altitude Area Defence). What Beijing should do, however, is press Pyongyang to create such a situation that would render the THAAD deployment unnecessary. Given these situations, it is a priority task for Washington, Seoul and Tokyo to further strengthen efforts to deter North Korean aggression.

In addition to the long and well-trained defence cooperation between the US and South Korean forces, cooperation among the three countries has been in progress, albeit slowly. In recent years, Japan has strengthened its posture to support American efforts to defend South Korea and to intercept North Korean missiles that target US territories. Seoul has agreed to the planned deployment of the US THAAD system against Beijing's opposition. Most recently, Japan and South Korea reached an agreement on the security of military intelligence (GSOMIA), which will facilitate exchanges of military information necessary for closer BMD cooperation. Additionally, the US–Japan joint development of an advanced interceptor for ballistic missile defence (SM3 Block IIA) is nearing completion.

To further improve deterrence against North Korea, the defence of South Korea and Japan should be planned and prepared, to support the two countries more closely than before. In the past, Washington's primary interest in the US–Japan security arrangements was for the US forces to use bases in Japan for the defence of South Korea. However, now that Japan is within the range of North Korean missiles, the defence of Japan and US forces therein are no longer separable from that of South Korea. It is, therefore, critically important that US–South Korea and US–Japan defence cooperation closely support each other.

Defence cooperation with Japan remains a politically sensitive issue to Seoul, for a strong anti-Japan sentiment persists within the public opinion. While Tokyo is aware of this reality, it is strongly hoped that Seoul will act pragmatically and cooperate with Japan for common defence purposes. As often seen in the past, a change of South Korean President can make Seoul's policy towards Pyongyang swing between confrontation and reconciliation, and its policy focus on relations with Japan between forward-looking cooperation and demands for apologies for Japan's past conduct. Thus, Seoul's future attitude towards both Pyongyang and Tokyo remains uncertain.

In addition to the three countries' defence cooperation, US declaratory policy is critically important in deterring North Korea. Given Pyongyang's unpredictable and defiant attitude towards the outside world, as well as its repeated provocations, it would be most advisable for Washington to make it clearer than before that "first use" of nuclear weapons remains its strategic option, or, at least to pointedly underscore "strategic ambiguity" with regard to "first use."

The Obama administration's Nuclear Posture Review (NPR) report implied a possibility of "first use" by stating that there would "remain a narrow range of contingencies in which US nuclear weapons may still play a role in deterring a conventional or CBM attack." The statement and other pronouncements in the report were seemingly aimed at assuring anxious allies of Washington's commitment to extend deterrence. However, it is doubtful if the statement was strong enough to impress upon adversaries US' resolve to deter.

Given that Pyongyang possesses biological and chemical weapons, it is critical not to adopt a policy of the so-called "sole purpose" to limit the purpose of nuclear weapons solely to deterring threats.

## Japan-US Alliance and the US Extended Deterrence

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In the context of tripartite strategic relations, Japan is an integral part of the US strategic posture. More than that, seen globally, Japan stands at a unique position among US allies. Tokyo shares with Washington security concerns about potential threats by Russia and China as well as those by North Korea's nuclear weapons and missile development.

Although NATO would no doubt remain the most important alliance for the US, the Europeans are seeing China through the economic lens and worrying less about North Korea in the context of their own security. They are currently focused on threats from a resurgent Russia and terrorism by extreme Islamists, as well as domestic problems caused by the influx of refugees and persisting economic difficulties.

In the Asia-Pacific region, South Korea is arguably focused primarily on threats from North Korea. Australia, situated in the Southern hemisphere, does not rely on the US extended deterrence as much as Japan does. While Japan depends upon the US extended deterrence in coping with nuclear threats, Japanese cooperation is equally critically important for the US forces and power projection in the Asia-Pacific region and beyond.

Japan facilitates the forward deployment of US forces, including the home-porting of an aircraft carrier and 20 other US naval vessels. Japan's "host-nation support" for US force presence, which is around US\$5.5 billion for FY 2016, is the largest among US allies. Japan has also been increasing its defence budget for the last four years in a row and plans to further increase it for FY 2017.

Finally, and most importantly, Japanese SDF's cooperation with the US forces has been expanding. Under the 2015 guidelines for defence cooperation, Japan has

committed to support the US forces in responding to armed attacks in the region, on the US or a country such as South Korea. Japan's military cooperation would be limited to such operations as ballistic missile defence, maritime operations, search and rescue, asset protection and logistic support. However, the new commitment signifies an epoch-making departure from the country's long-held policy of refraining from exercising the right to collective self-defence.

Washington's so-called "third-offset strategy," aimed at developing innovative and futuristic non-nuclear capabilities, will not only help reduce the role of nuclear weapons in US deterrence strategy but also add to the credibility of US extended deterrence at a global level. It would be below the strategic level that China and Russia are trying to expand their spheres of influence: China in the East and South China Sea and the Pacific Ocean and Russia in the areas from the Caucasus to the Baltic and the former Soviet part of the Eurasia.

Whether or how the Trump administration continues this strategy remains to be seen. However, as both China and Russia are catching up with the US in employing known advanced military technologies, it would be important for Washington to continue to work on the innovation of non-nuclear military capabilities. Dual-use technologies to be developed in Japan could be useful for this strategy and will help add a new dimension to alliance cooperation.

Outside the Japan-US alliance, Japan's assistance to strengthen the capacity for maritime security of the ASEAN countries concerned as well as Tokyo's diplomatic support for them can also help improve the strategic environments in Southeast Asia in favour of the shared purposes of the alliance. Japan has been building up strong ties with Southeast Asian countries ever since the US forces withdrew from the region in the wake of Vietnam War. Japan can, therefore, cooperate with the ASEAN countries for regional stability separately from the US, but in such a way as to serve the common purposes of the alliance as well.

## Envoi

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The concept of US extended deterrence had been developed by the US-led NATO as part of its strategy against the Soviet Union. Eventually, the US and its allies in the Asia-Pacific region became tasked with adapting the concept of US extended deterrence against emerging strategic challenges in the region. As discussed in preceding sections, it is in this region that China, a growing strategic power, poses unprecedented and complex challenges to the US deterrence strategy, which now depends on both nuclear and non-nuclear forces.

It will not be easy to apply the concept of US extended deterrence to Asia-Pacific geopolitics. In contrast to NATO, US alliances in the region are primarily bilateral in structure and, as noted earlier, the interests of Washington's regional allies in the US extended deterrence vary quite notably between Japan, South Korea and Australia. Most importantly, the US' nuclear strategy will continue to focus on Russia and NATO, which claims to be a nuclear alliance.

Since Japan shares with the US a broader spectrum of strategic interests than the other US allies in the region, it would be important for Japan to take leadership and work with America to conceptualise how the US extended deterrence can work in relations with North Korea and China, taking into account Russia's growing strategic interests in the region. A set of emerging trilateral frameworks for security cooperation, such as the US–Japan–South Korea, the US–Japan–Australia and the US–Japan–India, can be similarly productive.

If Japan can further strengthen its defence cooperation with the US, it would facilitate the success of Japanese leadership.

## Endnotes

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- i. This paper was written before February 2018, when the US came out with its new Nuclear Posture Review.

# Russia in the New Nuclear Age

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**Andrey A. Baklitskiy**

Russia enters the 2020s with a nuclear force that is second to none and is matched only by that of the United States (US). The country is in the concluding stage of a decades-long modernisation of its strategic capabilities to replace Soviet-era weapons with newer systems.<sup>1</sup> Russia is about two-thirds of the way through a modernization program to replace Soviet-era ICBMs with newer types. Delta IIIs and Delta IVs SSBNs are being replaced with new Borei-class submarines, while Tu-160s and Tu-95MSs heavy bombers are undergoing upgrades, and Tu-160M2 and PAK-DA aircraft will join the fleet. On 1 March 2018, President Vladimir Putin unveiled five new strategic nuclear systems that were supposed to offset any technological advantage Washington might have over Moscow.

With the exception of the US, Russia does not see other major nuclear powers as a direct threat to its security. Apart from occasional statements that French and British nuclear forces should be counted as a part of a single US/NATO arsenal, Moscow does not envision a military conflict in Europe that would have a nuclear dimension but would not involve the US. Russia sees China as partner in its competition with the US (as illustrated by recent Vostok-2018 exercises with Chinese participation) and is engaging Beijing in the formulation of responses to common threats from Washington, such as the ballistic missile defence.

Russian nuclear strategy got its current shape in December of 2014 with the introduction of the latest Military Doctrine. Contrary to what some Western experts claim, the doctrine did not lower the threshold for nuclear use. Rather, the document stated that nuclear weapons will only be used as a response to use of nuclear or other weapons of mass destruction against Russia and its allies or “when the very existence of the state is in jeopardy” – the same wording that was

used in the 2010 Military Doctrine. Moreover, the 2014 Doctrine also pioneered the concept of “non-nuclear deterrence”, which would take over some of the functions that had previously been reserved for nuclear weapons. With Russia getting more comfortable with its conventional capabilities, as demonstrated in Syrian campaign and regular large-scale exercises, its reliance on nuclear weapons is relatively decreasing.

## A Cloud on the Horizon

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**M**oscow’s nuclear policy is facing a growing number of challenges. The development of new—and improvement of existing—military technologies (such as precision guidance, hypersonic boost-glide weapons, missile defenses, and space-based weapons) threatens Russian nuclear forces and could undermine its second-strike capability. Among these, Moscow is prioritising missile defence threat both because of its potential for improvement and the symbolism of US disregard for Cold War strategic stability architecture. Potential Russian countermeasures to new technological developments are expensive and could also trigger US reaction and destabilise the situation further.

Arms control instruments that were previously used to address such issues are not working anymore, and worse, even existing US-Russian nuclear arms control treaties are on the way to becoming history. The US does not seem to be interested in having arms control negotiations with Russia; for its part, Moscow does not want to keep being the one who should compromise over disagreements. Without the ABM treaty, INF treaty and (quite possibly) New START treaty, Moscow and Washington will for the first time in more than 40 years find themselves with no negotiated restrictions over their respective nuclear arsenals. This could result in an increase in deployed warheads on strategic systems. Another grave threat will come from the lack of transparency and predictability, which is currently based on inspections, notifications, and military-to-military communication. In the absence of those, the parties will fall back to basing their planning on worst-case scenarios.

Finally, there is a growing concern in Russia about the possibility of conventional war with NATO and the US. Moscow believes that such a conflict could quickly escalate and reach a nuclear threshold, for example if Russian nuclear forces or command and control systems would come under attack. This is quite plausible since both the nuclear C3 systems and bases are used for both nuclear and conventional forces. Those concerns are reinforced by the appearance of low-yield warheads in the US Nuclear Posture Review and deliberations about limited nuclear use within the US expert community. Russian (and previously Soviet) military leaders never

really believed in escalation control and in private conversations conveyed that any conventional conflict with NATO risks rapid escalation into a full-scale nuclear war. Moscow is concerned that the US no longer shares this risk assessment—which presumably kept the “cold peace” between the two nuclear superpowers for decades.

## Russian response

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Russian response to the current challenges is threefold.

Moscow is working to preserve existing strategic arms control with the US. Russian officials at the highest levels maintain their openness to strategic stability negotiations as well as to discussing any issues of concern as long as Russian concerns are also taken up. Moscow has repeatedly stated that it is ready to extend the New START treaty for another five years. Russia has also been pushing for the adoption of multilateral arms control treaties, such as the treaty on Prevention of an Arms Race in Space (PAROS), which it co-authored with China. However, there is a significant part of the US establishment that believes that arms control in general, and specifically bilateral arms control with Russia, has outlived its usefulness. The narrative is that after the victory in the Cold War, Washington remains stronger than Moscow or any potential adversary and will be able to win any arms race. Therefore, the United States should not limit its capabilities which could be useful to address other threats, however unlikely those are.

From this point of view, the possibility to deploy ballistic missile defence against the rogue states is more important than the ABM treaty, and the ground launched cruise missiles needed to counter China in the Pacific are worth more than the preservation of the INF treaty. This group is joined by people who are concerned about alleged Russian violations of its obligations under the INF treaty and who do not want to “encourage bad behaviour” by negotiating with Moscow. While this “blocking coalition” in the US executive and/or legislature exists, there is little chance of negotiating—and much less, ratifying—any new Russian-US arms control agreement.

With this in mind, Russian responses to imbalances in bilateral strategic relations have been shifting towards the military-technical sphere. After years of attempts to deal with US missile defence in Europe by diplomatic means, Russia has opted for developing a host of new systems (i.e., an ICBM, a nuclear-powered cruise missile, an unmanned underwater vehicle, hypersonic aircraft missile system and a hypersonic boost glide vehicle) that could defeat or circumvent US ABM capabilities. Some of the systems in question (the cruise missile and UUV) were

probably meant more as a bargaining chip and a way to bring the US back to the negotiating table than as a warfighting capability. However, invitations to restart strategic stability dialogue both in President Putin's March 1 address to the Russian Parliament, his subsequent interview to NBC,<sup>ii</sup> and the Helsinki Summit with US President Donald Trump, were either misread or ignored by the US. The loss of those diplomatic opportunities will make new technological arms race more probable – a situation that is made more troubling by the US' announcement of withdrawal from the INF treaty.

In the short term, Moscow is well-positioned to keep strategic balance with Washington or even gain an edge – it is farther along the modernisation curve, has fielded new systems, and has a good technologic base for future developments. At the moment, the US also seems to be mired in budget fights that can undermine its capability to compete with Russia. However, any significant quantitative or qualitative shift on the Russian side will eventually draw Washington into the competition. And in the long run, any kind of arms race with the US will be difficult to sustain for Russia given the size of the US economy. It also would mean spending on the systems that cannot be used in combat to the detriment of other military priorities (although precision guided, and autonomous technologies can be useful in conventional conflicts) as well as economic development. Russian authorities keep emphasising that they will not fall into a new arms race.<sup>iii</sup> However, given the long-standing tradition of deterrence based on the rough strategic parity with US, it is hard to see how this could be avoided. A Russia-US arms race will also risk drawing China in the competition as a consequence.

Russia also increases its conventional military capabilities in the spheres it considers most threatening (air defences and conventional precision guided missiles) while at the same time reminding its nuclear weapons opponents about its nuclear arsenal to prevent possible military confrontation. The development of new air defence system S-500 and modernisation of air defence of the Moscow region are aimed at permitting Russia to withstand potential attack with conventional NATO missiles. Increasing numbers of sea and air-launched cruise missiles in Russian forces provide Moscow with long-range deterrence options.

Concurrently, repeated invocation of nuclear weapons in public speeches being delivered by Russian officials are meant in part to remind the United States that major nuclear powers do not fight wars with each other because the danger of doing so is simply too significant. Russia also maintains that any use of nuclear weapons against it—be it tactical or strategic—will trigger an all-out response as President Putin has recently reminded the audience at the Valdai Club meeting.<sup>iv</sup> This is consistent with classical Soviet approach to nuclear conflict. According to the Russian president, the standard procedure is launch under attack based on the

early warning system. As the president said, “We as martyrs would go to paradise while they will simply perish because they won’t even have time to repent their sins.” Such strong statements increase Russian deterrence posture but also cause fear in the West and could lead to inadvertent escalation.

## 2019 and beyond

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Current Russian responses to the challenges it faces in the nuclear sphere seem effective for the moment. However, at some point Moscow will have to formulate policies that would be sustainable in the long run. Any such policy would have to include arms control as well as confidence building measures. However, at the moment, prospects for US-Russian, much less multilateral, nuclear arms control seem bleak.

The INF treaty, which has been essential for the European security for 30 years, is on a life support. While this issue could have been solved, neither Russia nor the US were willing to go the extra mile and propose a solution which would go beyond the procedures of the treaty. While the US was accusing Russia of violating the treaty, Moscow felt that Washington kept dismissing Russian concern as irrelevant and was not willing to have a dialogue among the equals. Both countries feel themselves strong enough to weather the dissolution of the treaty. With little prospects for the situation changing, INF treaty will most probably disappear in 2019.

US withdrawal would create a lot of problems for both European and international security. Even the experts that believed that Russia violated the INF treaty, concurred that, in the words of Vice Chairman of the Joint Chiefs of Staff Gen. Paul Selva, “Given the location of the specific missiles and deployment they [Russians] don’t gain any advantage in Europe.”<sup>v</sup> Numbers of allegedly non-compliant Russian ground launched cruise missiles (GLCMs) are dwarfed not only by US sea (SLCMs) and air launched cruise missiles (ALCMs) but even by Russian SLCMs and ALCMs. Without the treaty, long-range GLCMs and even INF-range ballistic missiles could be developed and deployed in Europe in large numbers. Even if currently the talk in Washington focuses mainly on possibilities that GLCMs give in Asia-Pacific to counter China, this can easily change in the future. US BMD system did not appear in Europe until more than a decade after the US had withdrawn from the ABM treaty.

New START remains the last fully operational arms control treaty between Russia and the US. While both sides comply with their obligations (except for Russian accusations over US modification of launcher tubes on submarines and heavy

bombers) and the treaty can be easily extended for another five years, it also faces an uncertain future. On 28 November 2018, Congresswoman Liz Cheney and Senator Tom Cotton introduced the Stopping Russian Nuclear Aggression Act today that would prohibit government from extending the New START unless Russia agreed to verifiably reduce its stockpile of tactical nuclear weapons (a non-starter for Moscow).<sup>vi</sup> The draft bill was followed by a letter of 24 Senate Republicans to President Trump with the similar message. While the bill is unlikely to pass it will certainly influence the calculus of the executive.

The US President famously called New START a bad deal and refused the extension proposal from President Putin during their first phone call. US National Security adviser John Bolton is openly skeptical about the treaty, and with the departure of Jim Mattis as US Secretary of Defense, New START might lose the support it currently has from the Department of Defense.

The situation is aggravated by a deadlock over the negotiations of Prevention of an Arms Race in Space Treaty, general impasse at the Conference on Disarmament, and lack of progress over the ratification of the Comprehensive Nuclear-Test-Ban Treaty. So, while Moscow still maintains its commitment to nuclear arms control, there is a growing sense of disillusionment. Some prominent Russian experts have announced that bilateral arms control is dead and should be substituted by multilateral “strategic arms management”<sup>vii</sup> or a “dialogue of all nuclear weapons states”.<sup>viii</sup>

However, this does not mean that the arms control as a concept must necessarily disappear; a good case could be made for its modification to address the new realities.

## Future of arms control

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**A**rms control as a concept and both the New START and the INF treaties did not appear as abstract ideas but were meant to address specific security concerns of the states involved.

In the case of INF, it was the deployment of intermediate-range ballistic and cruise missiles in Europe, which due to short flight time raised the incentives for the first strike and were highly destabilising. In this sense any post-INF arrangements should be aimed at preventing the repeat of such a scenario. Non-deployment of INF-range ground launched missiles in European continent would be an aim for such negotiations.

New START treaty was the latest in the series of US-Soviet agreements limiting the deployed strategic nuclear weapons. But while the caps on the number of missiles and warheads were important, even more crucial were the transparency measures, which included on-site inspections, exchanges of telemetry, notifications about launches, exercises, movements and patrols of strategic weapons. The treaty is a substantial confidence building measure with the parties trying to ensure there is no suspicious activity which could be misinterpreted by the other side. As a retired Russian general once put it “before the START treaty, every time there were major NATO exercises, launch officers would sit in the control rooms and wait for a launch order since we did not know if it was a preparation of an attack against the USSR”.<sup>ix</sup> Preserving these transparency measures would be indispensable in any post New START agreement.

Future arms control agreements will have to address the abovementioned issue. But they must not necessarily repeat their form or structure. While a lot has been said about the benefits of the traditional legally binding treaties – they are ratified by parliaments and become laws in respective countries which increases their stability and permits developing intrusive verification mechanisms – they also have some major drawbacks. An obvious one is that they are often hard to pass through the legislatures, as anybody who has been following the fate of the CTBT can confirm. Specifically, the US Senate currently does not seem to be inclined to ratify any arms control treaty with Russia, which would be acceptable for Moscow.

This leads us to an often-overlooked and less developed arms control instrument – politically binding agreements. While such agreements are simply understandings between the executive branches of different countries and therefore can be disregarded by the next administration, the reality is much more complicated. As the recent history has shown, new heads of executive have ample powers to leave the legally binding treaties (as was the case with AMB treaty and is happening now with the INF treaty), which does not provide them with any extra protection.

While one can argue that legally binding treaties normally have a withdrawal period, which makes them more predictable, it is not unheard of having one even without the parliamentary ratification – for example, the Trump administration is observing the four-year withdrawal period from the Paris climate agreement,<sup>x</sup> which the US entered through an executive order by then President Barack Obama.

Another distinctive feature of a legally binding agreement is the possibility to develop robust verification mechanisms, critical for nuclear arms control. While it’s true that majority of arms control agreements were in fact legally binding treaties there are examples of verification mechanisms which are not legally binding. Joint Comprehensive Plan of Action (JCPOA) on Iranian nuclear program has ample verifications measures, while the majority of those are based on the IAEA

additional protocol, some go beyond it. Exchanges of military information and on-sites visits are present in politically binding Vienna Document on Confidence- and Security-Building Measures.

Example of the JCPOA also shows us that multilateral agreements are more stable than bilateral, whatever their nature. President Trump left the JCPOA in May of 2018, but all remaining parties (Iran, Russia, China, France, UK, Germany and the EU) decided to continue to implement the agreement since all participants were better off with the plan of action than without it. Compare this to the Agreed Framework between the US and DPRK which disappeared as Washington withdrew. This approach could be transferred to classical arms control as well. Had the European states participated in the INF treaty, US withdrawal – while still problematic – wouldn't permit deployment of INF systems in Europe, which could permit Russia to stay in the treaty. The same is true about the ABM treaty, had European countries took part – US would not be able to deploy its systems in Europe and Russia would have less reasons for concern.

When the countries have not one but a number of incentives to stay in the agreement, its chances of survival go up. Even though European NATO allies were not parties to the INF treaty, they succeed in persuading US administration to postpone its decision to withdrawal – something the ratification by the Senate wasn't able to do.

Future arms control system could include a mix of classical legally binding instruments, politically binding agreements, parallel unilateral actions, crisis stability channels, transparency and confidence building measures, and multilateral coordination. The new system will have to be more flexible but also address real security concerns of the participating countries.

## Conclusion

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**T**he framework proposed in this article does not reflect current views of the Russian Government on the arms control, which for a long time were based on the legally binding treaties as opposed to political agreements championed by the US. However, main Russian concerns always were about durability and comprehensive character of agreements, not about their specific legal form.

There are some hints that Moscow could be open to more flexible arrangements. Its active participation in the JCPOA, readiness to accept unilateral political pledges on “no first placement of weapons in outer space”, pending the negotiation of PAROS,<sup>xi</sup> and the experience of US easily withdrawing from legally binding treaties

must have influenced the way officials in Moscow see international agreements. As Russian Deputy Foreign Minister Sergey Ryabkov said in a recent interview on the future of the INF treaty, “It is clear that political agreements and even legally binding treaties cannot in current situation provide full and indefinite guarantees [...]. However, even framework understandings on the sensitive security issues with their later codification create possibility to expect some stabilizing predictability and mutual restraint”.<sup>xii</sup>

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Twenty years since the dawning of a ‘Second Nuclear Age’, the international strategic community faces the challenge of maintaining the current nuclear order while recognising its limitations. This monograph tackles this challenge in twelve insightful, authoritative pieces written by both academics, and practitioners in the field of nuclear policy.

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