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Renewed Big Power Competition and the Future of Nuclear Non-Proliferation

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Syeda Saiqa Bukhari and Asia Karim¹

Abstract

In recent years, nuclear weapons-based deterrence has returned to the forefront of global politics and there is a growing risk of conflict between the US, Russia, and other nuclear powers. The US-Russia bilateral arms control agreements are stalling. Strategic instability is increasing which can create a domino effect on the nuclear non-proliferation regime. After the entry into force of the NPT in 1970, state parties agreed to work for the complete elimination of nuclear weapons. Instead, all nuclear powers are modernizing their nuclear forces. The non-proliferation regime is becoming increasingly discriminatory, in which big powers are supporting certain states in vertically proliferating while constraining others from even accessing nuclear technology for peaceful purposes. These trends indicate that not only shall nuclear disarmament remain a pipedream but even the non-proliferation regime shall be undermined. This study investigates the role of NPT's nuclear weapon states in fulfilling their non-proliferation commitments and risk reduction. The study concludes that arms control is no longer treated as a priority by the nuclear weapons states. The NPT nuclear-armed states

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are vertically proliferating and are only interested in those arms control agreements that do not undermine their national security priorities. There are deep fissures in the non-proliferation regime, in which a majority of NPT's non-nuclear weapon states have sought to ban nuclear weapons sans support of nuclear powers.

Keywords: Nuclear Weapons, Nuclear Non-Proliferation Treaty, Arms Control, Disarmament, Non-proliferation.

Introduction

Nuclear weapons profoundly impacted global politics after the US devastated Japan by dropping two nuclear weapons on it in August 1945. The condemnable precedent set by the US led the world to the realization that these weapons must never be employed again. However, nuclear weapons and technology influence the strategies, policies, and approaches of nuclear weapon states in multiple ways.² Soon after making nuclear weapons in 1945, the US took initiatives to create a global nuclear non-proliferation regime in which it would retain its capability and prevent others from doing so.³

Consequently, the Nuclear Non-Proliferation Treaty (NPT) was created in 1970 and later extended indefinitely in May 1995.⁴ Currently, 191 states are signatories to the Treaty, excluding Israel, India, Pakistan, and North Korea. North Korea became a state party to the NPT in 1985 as a non-nuclear state but withdrew from it in

2. Adam Lowther and Stephen Cimbala. "Future Technology and Nuclear Deterrence." Wild Blue Yonder, 2020. <https://www.airuniversity.af.edu/Wild-Blue-Yonder/Article-Display/Article/2071083/future-technology-and-nuclear-deterrence/>.

3. Nina Tannenwald. "Life beyond Arms Control: Moving toward a Global Regime of Nuclear Restraint & Responsibility." *Daedalus*, Vol. 149, No. 2, Meeting the Challenges of a New Nuclear Age (Spring 2020): pp. 205-221.

4. "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)." <https://www.un.org/disarmament/wmd/nuclear/npt/>.

2003, deciding to instead develop nuclear weapons. It carried out its first weapon test in October 2006. While the P5 (the US, UK, Russia, China, and France) are allowed to maintain their nuclear arsenal under the NPT, they have committed to nuclear disarmament and the goal of eventual elimination of nuclear weapons under Article VI of NPT. The treaty's recent Review Conference (RevCon)⁵ was carried out in August 2022. NPT RevCons have a history of failing to reach an agreement on a final document on various issues such as the Article VI of NPT. This article is the major point of discord between nuclear weapon states (NWS) and non-nuclear weapon states (NNWS). Similarly, Article IV of the treaty (related to the peaceful use of nuclear technology)⁶ is another irritant between the two groups.⁷

Today, in terms of nuclear weapons, the world is split between "haves" and "have nots." The rift is fundamentally created by the text of NPT, which only recognizes states that conducted nuclear weapon tests before 1 January 1967 as NWS. All other NWS – Pakistan, India, Israel, and North Korea⁸ – are denied this apartheid status by the treaty.

According to a recent SIPRI report, the decline in nuclear arsenals has stalled.⁹ Instead of arms control, almost all nuclear possessors are now focusing more on the modernization and modification of their existing weapons. These trends clearly indicate that the reduction process of nuclear arsenals is going to

5. The NPT's quinquennial review conference is convened to assess whether the treaty's responsibilities are being met by the treaty's state parties.

6. "Treaty on the Non-Proliferation of Nuclear Weapons." IAEA. (April 22, 1970).

7. "The NPT Review Conference: Analyzing the Outcome." The Foundation for Strategic Research, 7 October 2015. <https://www.frstrategie.org/en/publications/notes/npt-review-conference-analyzing-outcome-2015#:~:text=The%202015%20Nonproliferation%20Treaty%20Review,zone%20in%20the%20Middle%20East>.

8. "Treaty on the Non-Proliferation of Nuclear Weapons." IAEA, April 22, 1970.

9. "Global nuclear arsenals grow as states continue to modernize—New SIPRI Yearbook out now." SIPRI, 14 June 2021. <https://www.sipri.org/media/press-release/2021/global-nuclear-arsenals-grow-states-continue-modernize-new-sipri-yearbook-out-now>.

slow down. Under this scenario, this paper analyzes major NWS' commitments towards nuclear non-proliferation, nuclear risk reduction, and their policies towards new global anti-nuclear weapon trends. After assessing their behavior towards non-proliferation, the study concludes that arms control is no longer treated as a priority by the nuclear possessor states. They now prioritize national security over playing an effective role in global arms control. Consequently, international nuclear politics is becoming tense primarily because of the dissatisfaction expressed by NNWS.

Role of NPT's Nuclear Weapon States

It is critical to understand the thinking of major powers behind their policy of extending support to certain countries in acquiring nuclear weapons capability but not others. These legitimate nuclear powers to the system cannot absolve themselves of their moral obligation to arms control and complete elimination of nuclear weapons. A budding expert categorized the existing nuclear scenario into two theoretical explanations: i) a power projection theory and ii) a political friendship theory. The power projection theory envisages that states will oppose other states when it comes to acquiring nuclear weapon capability to project their own power over others, irrespective of whether these states are friends or enemies.¹⁰

On the contrary, political friendship theory tends to explain nuclear proliferation based on friends and adversaries. Kroenig further argues that, depending on a country's political connection with the proliferator, the threat of nuclear proliferation varies. Countries are more concerned by the proliferation of nuclear weapons to adversary states because the chances of military confrontation with them are higher as compared to an allied state.¹¹ Hence, major nuclear weapon states determined the dynamics of

10. Mathew Kroenig, "Force or Friendship? Explaining Great Power Nonproliferation Policy." *Security Studies*, Feb 25, 2014.

11. Mathew, "Force or Friendship."

non-proliferation as per their military and political interests, rather than promoting non-proliferation norms. Contrary to these theoretical assumptions, the recognized nuclear weapon states have committed to cooperate in achieving arms control and total nuclear disarmament in good faith, in line with Article VI of the NPT. Several initiatives have been taken in this regard, including the Conference on Disarmament (CD), the United Nations Office for Disarmament Affairs (UNODA), the United Nations General Assembly (UNGA), Creating an Environment for Nuclear Disarmament (CEND), and Wilton Park. But no meaningful step has been taken by the NWS towards nuclear disarmament.

The role of the NPT's NWS still matters for several reasons. Firstly, they have taken the responsibility to completely disarm (Article VI of NPT), provide negative security assurances, and give non-discriminatory access to nuclear technology for peaceful uses. Interestingly, they have not lived up to any of these major obligations, which seriously undermines their claimed "legitimacy" and that of the NPT. Secondly, they hold permanent seats in the United Nations Security Council (UNSC) and carry the onus of maintaining stability. Thirdly, they are also big economies that can influence middle and smaller powers; besides, they are major stakeholders in the world economic order whose policies can impact the economies of other states.

Lastly, together the US and Russia possess the largest deterrent forces and most advanced technologies.¹² The UK, France, and China have hundreds of nuclear weapons, and advanced delivery systems but India has ostensibly outpaced them at least in terms

12. Mario E. Carranza. "Can the NPT Survive? The Theory and Practice of the US Nuclear Non-Proliferation Policy after September 11." *Contemporary Security Policy*, 27/3 (December 2006): pp.489–525.

& George Perkovich and James M. Acton (eds.). "Abolishing Nuclear Weapons: A Debate", *Carnegie Endowment for International Peace*, (2009).

of fissile material stocks.¹³ These countries are modernizing and upgrading their existing nuclear weapons and acquiring more powerful deterrent forces. The UK spent USD 9 billion on replacing outdated nuclear-powered submarines¹⁴ and shall increase the size of its warheads stockpile. Similarly, France is replacing its Rubis-class submarines with the Suffren nuclear submarines, which have been upgraded. In comparison to the US anti-ballistic missile system, Beijing has developed an anti-satellite missile (ASAT) and Multiple Independently Targetable Re-entry Vehicles (MIRVs).¹⁵ Despite the absence of nuclear threats to the national security of the UK and France, the two retain considerable deterrent forces.

The prevalent global strategic environment, constructed by bigger states, bars the other four non-NPT NWS from becoming a part of the nuclear non-proliferation regime. South Asian nuclear powers, India and Pakistan, covet the status of recognized nuclear powers before they join NPT.¹⁶ Commenting on NPT, an Indian representative once stated, “A nuclear non-proliferation treaty is essentially an agreement between nuclear-weapon nations not to expand their nuclear arsenals, implying that other states may pursue their nuclear weapon programs.”¹⁷ Meanwhile in 2010, Ambassador Abdul Basit, spokesperson for Pakistan’s Foreign Office, told Kyodo News Agency that Islamabad has abandoned its previous position that joining the NPT was linked to India joining it

13. Ronald O’Rourke. “China Naval Modernization: Implications for US Navy Capabilities: Background and Issues for Congress.” Congressional Research Service, December 13, 2017; Mansoor Ahmad, India’s Nuclear Exceptionalism, Belfer Center, Harvard University, <https://www.belfercenter.org/publication/indias-nuclear-exceptionalism> and Saddam Hussain, Estimating India’s Nuclear Weapons Producing Capacity, Bulletin of Atomic Scientists, <https://thebulletin.org/2018/11/estimating-indias-nuclear-weapons-producing-capacity/#post-heading>.

14. Hans, M. Kristensen and Robert S. Norris. “Worldwide deployments of nuclear weapons.” Bulletin of the Atomic Scientists, (2017): pp.1-9.

15. Hans. “Worldwide Deployments.”

16. Bhumitra, Chakma. “Strategic Dynamics and Nuclear Weapons Proliferation in South Asia: Historical Analysis.” (Bern: Peter Lang, 2004), pp.179–207.

17. Bhumitra. “Strategic Dynamics.” pp.211–247.

first. This is no longer the case. Pakistan would only join NPT as a recognised NWS.¹⁸ Likewise, Israel is not ready to accede to NPT. Its status as NWS is also ambiguous as it has never denied or accepted the possession of nuclear weapons.¹⁹ North Korea is a unique case. It was a member of NPT but in 2003 it withdrew from the treaty and became a nuclear possessor state in 2005. It has since never indicated its willingness to rejoin NPT. The approach of NWS outside of NPT also indicates a lack of commitment to global non-proliferation in line with policies of the recognized weapon states.

To be able to make progress on nuclear arms control and disarmament, all nine nuclear possessor states need to work together. Big nuclear powers should be the first to begin this process, being the first to develop and test nuclear weapons. Continued development and upgradation of nuclear weapons by these powers, deterrence forces exacerbate the threat perception of other nuclear powers. To mitigate the emerging threat, the latter tend to upgrade their own nuclear capability.

Trends in Nuclear Possessor States

NWS are confronted with multiple security challenges. These include the possibility of accidental use, horizontal and vertical proliferation, and nuclear terrorism. Rather than addressing these challenges, they are continuously allocating huge funds for the upgradation of their nuclear arsenals and delivery system. They are also investing enormously on the safety and security of their nuclear forces. But no attention is paid to arms control and disarmament measures.²⁰

18. "Arms Control and Disarmament Agency." Documents on Disarmament, (1965): p.335. <http://unoda-web.s3-accelerate.amazonaws.com/wp-content/uploads/assets>.

19. "Israel Reject Call to join Anti-Nuclear Treaty." Reuters, 2010. <https://www.reuters.com/article/us-israel-nuclear-treaty-idUSTRE64S1ZN20100529>.

20. "Global nuclear arsenals grow as states continue to modernize—New SIPRI Yearbook out now." SIPRI, 14 June 2021. <https://sipri.org/media/press-release/2021/global-nuclear-arsenals-grow-states-continue-modernize-new-sipri-yearbook-out-now>.

According to SIPRI Yearbook 2021,²¹ in total 13,080, nuclear weapons are possessed by nine NWS. Russia holds the largest number (6,255, of which 1,625 are deployed), while the US has 5,550, with 1,800 deployed. Together these two states account for over 90 percent of the world's nuclear weapons; while reportedly, U.K. has 225 warheads, France 290, China 350, India 156, Pakistan 165, Israel 90, and North Korea has 40 to 50 warheads.²² These estimates carry the Western bias to underplay vast Indian capability because the US is building up India as a counterweight to China. Alternative estimates hold that India is ostensibly the third largest and fastest-growing nuclear-armed state in the terms of nuclear warheads potential.²³

Compared to the SIPRI report (2020), overall, the number of nuclear warheads decreased only slightly in 2021. Moreover, the Federation of American Scientists estimated about 13,100 warheads globally in early 2021. Of these 3,800 are deployed and 1,900 (of the US, Russia, Britain, and France) are on high alert to be used on order. The following map will give a clearer picture of global nuclear inventories in 2021.

Russia continues to be the largest NWS, while the US follows closely.²⁴ These two reports indicate very little decrease in total number of nuclear weapons in the world. This downward trend is only quantitative, as NWS are continuously modernizing and

21. "Nuclear weapon modernization continues but the outlook for arms control is bleak: New SIPRI Yearbook." *SIPRI*, June 15, 2020. <https://www.sipri.org/media/press-release/2020/nuclear-weapon-modernization-continues-outlook-arms-control-bleak-new-sipri-yearbook-out-now>.

22. "Nuclear Weapon."

23. See Mansoor and Saddam papers quoted above.

24. Hans M. Kristensen and Matt Korda. "Status of World Nuclear forces." Federation of American Scientists, March 2021. <https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>.

upgrading their arsenals.²⁵ Though somewhat lesser in number, nuclear weapons are now more lethal. An important factor in the quantitative decrease can be attributed to the fact that the major nuclear states (Russia and America) are also retiring their outdated weapons, which does not contribute to the global disarmament efforts.²⁶

A lukewarm commitment of the two biggest nuclear powers (the US and Russia) to arms control and disarmament is complicating the global disarmament process. This will prompt an arms race between them and encourage horizontal and vertical proliferation. Besides, the situation is leading to a security dilemma among some regional rivals in west Asia (Iran vs Saudi Arabia and UAE) and the Korean Peninsula (South and North Korea).²⁷

Trends in Global Nuclear Politics

Trends in NPT Nuclear Powers

The US and the erstwhile Soviet Union – Cold War foes – have also been engaged in arms control negotiations. This practice began during the Cold War's détente phase in the 1960s. The Anti-Ballistic Missile (ABM) Treaty and Strategic Arms Limitation Treaty (SALT 1) in 1972, SALT II in 1979, Intermediate-Range Nuclear Force (INF) Treaty in 1987, and Strategic Arms Reduction Treaty (START I) in 1991²⁸ were among the accords and treaties signed between the two states. START is however the only one of these treaties that has survived. It was set to expire in 2009 but was

25. "Global nuclear arsenals are expected to grow as states continue to modernize—New SIPRI Yearbook out now." *SIPRI*, (13 June, 2022), <https://www.sipri.org/media/press-release/2022/global-nuclear-arsenals-are-expected-grow-states-continue-modernize-new-sipri-yearbook-out-now>

26. "Global Nuclear Arsenals."

27. Hans M. Kristensen & Matt Korda. "Status of World Nuclear forces," Federation of American Scientists, March 2021. <https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>.

28. "New START at a Glance." Arms Control Association, February 2021. <https://www.armscontrol.org/factsheets/NewSTART>.

extended in 2010 under the name of Measures for Further Reduction and Limitation of Strategic Offensive Arms Treaty (New START). Both parties have agreed to limit strategic missile launchers to 1550 (deployed and non-deployed) under the treaty. In February 2021, the treaty was extended for five years, which is considered a breakthrough by global arms control observers.²⁹

However, in response to US involvement in Ukraine and due to alleged non-compliance claims by both sides, President Putin suspended the New START indefinitely.³⁰ As a presidential candidate, Joe Biden vowed to revise American nuclear policy. He went on to say that, unlike his predecessor, he was willing to participate actively in global anti-proliferation and non-proliferation activities.³¹ But fiscal budget 2022 allocations for National Nuclear Security Administration (NNSA) indicate the opposite. Biden set aside USD 27.7 billion for the up-gradation of existing air, land, and sea-based systems in the current year.³²

Biden's fiscal 2022 NNSA budget also provides funds for upgrading warheads for the new nuclear long-range, stand-off air-launched cruise missile of the air force (W80-4), the navy's Trident D5 SLBM (W88), air force's new Ground Based Strategic Deterrent missile (W87-1), and navy's new SLBM (W93) for the new Columbia strategic submarine. There is also money allocated for testing the newly refurbished warheads for currently deployed SLBMs (the W76), the production of the B61-12, and the pre-production of the refurbished warhead in the Minuteman III (W78). 2022 Pentagon budget allocates USD 27.7 billion for modernization of the land,

29. "New START."

30. Putin Signs Law to Suspend New START, Tass, <https://tass.com/politics/1582823>.

31. Adam Mount. "Biden Must be clear about what nuclear weapons are for?" *Foreign Policy*, 2021. <https://foreignpolicy.com/2021/05/12/biden-nuclear-weapons-review-sole-purpose/>.

32. Pincus, Walter. "What Biden's Nuclear Posture Review is Missing." *The Cipher Brief*. 2021. https://www.thecipherbrief.com/column_article/what-bidens-nuclear-posture-review-is-missing.

sea, and air systems that will deliver nuclear weapons. There is USD 5 billion for the new Columbia submarines, USD 3 billion for the B-21 long-range strike bomber, USD 2.6 billion for the new Ground Based Strategic Deterrent ICBM, and USD 609 million for the long-range, stand-off air-launched cruise missile.³³

The increase in the defense budget for 2022 shows a lack of consensus within the administration about domestic arms control measures. Overall, it can be said that the Biden administration is trying to address international proliferation concerns through negotiation but will continue to enhance US deterrence capabilities.

The US is adding new nuclear weapons to strengthen deterrence. In January 2020, Pentagon deployed W76-2,³⁴ a low yield variant of the nuclear weapon traditionally used on the Trident submarine launched missile. They are also working on another submarine, W93.³⁵ This year, the National Nuclear Security Administration (NNSA) expects to spend USD 15.6 billion on maintaining and updating the US nuclear arsenal. This money will be used to modify nuclear warheads and extend their lives.³⁶ These trends have given rise to concerns about a new arms race between Russia and the US, which could reverse the progress made on arms control since the Cold War. The US is also improving surveillance, acquisition, and guidance systems for precision targeting. President Obama's 2010 NPR had suggested that nuclear weapons would not be used against NNWS, but outliers such as

33. Pincus, "What Biden's Nuclear Posture."

34. "US Navy deploys low-yield Trident W76-2 nuclear submarine warhead." January 30, 2020. <https://www.naval-technology.com/news/us-navy-deploys-low-yield-trident-w76-2-nuclear-submarine-warhead/>.

35. Mehta, Aaron. "Inside America's newly revealed nuclear ballistic missile warhead of the future." Defence News. February 24, 2020. <https://www.defensenews.com/smr/nuclear-arsenal/2020/02/24/inside-americas-newly-revealed-nuclear-ballistic-missile-warhead-of-the-future/>.

36. Hersman, Rebecca. "Nuclear Modernization under competing Pressures." Center for Strategic and International Studies, February 2021. <https://www.csis.org/analysis/nuclear-modernization-under-competing-pressures>.

North Korea and Iran, as was the case then, would be a fair game. The US also planned to spend about USD 350 billion in the next ten years on upgrading their existing nuclear weapons.³⁷

Russia too is taking measures to counter emerging threats to its security. It is working on hypersonic vehicle carrying *Sarmat* Inter Continental Ballistic Missile, Kh-47M2 Kinzhal air-launched hypersonic ballistic missile, the Avangard hypersonic boost-glide vehicle, the Tsirkon sea-launched hypersonic cruise missile, and the Tsirkon hypersonic cruise missile. Russia has also showcased the Bure vestnik nuclear-powered cruise missile, and the Poseidon nuclear-powered underwater drone. It has reportedly made investments in naval weapons such as the Status-6, an underwater drone that could carry a nuclear bomb.³⁸

In addition, Russia has declared plans for a new nuclear weapons deployment strategy and has also modified its stance on the use of nuclear weapons against non-nuclear attacks. In five years from 2015-2020, Russia was to upgrade its missile defense system, aimed at penetrating the BMDs of its adversary.³⁹ Russia considers all these developments justified for its national security. In 2016 Putin stated, “Nuclear Arms are factor of deterrence and are meant for peace and security and must not be considered as factor of aggression.”⁴⁰

37. Sanger, David E. Baker, Peter. “Obama Limits When US Would Use Nuclear Arms.” The New York Times, April 5, 2010.

38. Rinna, Anthony. “Nuclear weapons, financing, and Russia’s armed forces reform.” February 17, 2015. <https://basicint.org/blogs/2015/02/nuclear-weapons-financing-and-russias-armed-forces-reform>.

39. Rinna. “Nuclear Weapons.”

40. “Meeting of the Valdai International Discussion Club.” Official Internet Resources of the President of Russia. October 27, 2016. <http://en.kremlin.ru/events/president/news/53151>.

A Pentagon report suggests that⁴¹ Beijing is undertaking modernization program that would give it a major power status at the world stage. It is working on nuclear modernization aiming to achieve increased mobility, accuracy, number of warheads, and diversity. Furthermore, China's arsenal includes about 1,250 ground-launched ballistic and cruise missiles with ranges varying from 500 to 5,500 kilometers. In contrast, the US only had ground-launched ballistic missiles with a range of less than 500 kilometers⁴² and no ground-launched cruise missiles until it withdrew from the Intermediate-Range Nuclear Forces Treaty (INF) in 2018. Following the pullout, the US pursued the development of a ground-launch cruise missile, quoting the danger posed by China as the reason for its development.⁴³

In 2021, the US spent around USD 800.67 billion on its military compared to USD 778.4 billion in 2020.⁴⁴ Russia, in comparison, spent over USD 65.9 billion, an increase of approximately USD 20 billion. This amount is a little over two percent of the expenses on defense in 2021, an increase of roughly 7 percent from the previous year.⁴⁵ On the other hand, China with an increase of 4.7 percent over allocations in 2020, allocated an estimated USD 293 billion on its military in 2021.⁴⁶ Increase in the defense expenditures of major nuclear states makes it evident that their commitment to nuclear arms control and disarmament is mere rhetoric.

41. Sonne, Paul. "China is ramping up nuclear and missile forces to rival US, Pentagon says." National Security, September 1, 2020. https://www.washingtonpost.com/national-security/china-is-ramping-up-nuclear-and-missile-forces-to-rival-us-pentagon-says/2020/09/01/00c4dca4-ec95-11ea-a21a-0fbbe90cfd8c_story.html.

42. Browne, Ryan. "China is aiming to double the size of its nuclear arsenal, Pentagon report says." CNN, September 2, 2020. <https://edition.cnn.com/2020/09/01/politics/china-military-power-report/index.html>.

43. "Using China as excuse for US leaving INF Treaty unacceptable: envoy." *Xinhua*, August 23, 2019. http://www.xinhuanet.com/english/2019-08/23/c_138331899.htm.

44. "World military expenditure passes \$2 trillion for first time." SIPRI, 25 April 2022. <https://www.sipri.org/media/press-release/2022/world-military-expenditure-passes-2-trillion-first-time>.

45. "World Military Expenditure Passes." SIPRI.

46. "World Military Expenditure."

The UK and France, allies of the US in global politics, also have nuclear policies more aligned with that of the US.

Trends in South Asia

Two South Asian archrivals – India and Pakistan – are continuously working to maintain their nuclear deterrent. In 2020, the International Panel of Fissile Materials estimated that Islamabad had an inventory of approximately 2,900 kilograms of weapon-grade highly enriched uranium (HEU) and about 410 kilograms of weapon-grade plutonium. Theoretically, this is considered enough to produce between 285 and 342 warheads if each first-generation implosion-type warhead uses 15 to 18 kilograms of weapon grade HEU or 5 to 6 kilograms of plutonium.⁴⁷ India, in comparison, has the capacity to produce up to 2,686 nuclear weapons, according to a 2017 discussion paper of Mansoor Ahmed⁴⁸ for Harvard University's Belfer Center.

Pakistan and India are non-signatories to the NPT and have made their signing of the treaty contingent on their recognition as NWS, which may not be possible in the present political environment. Both states have also not signed the Comprehensive Nuclear Test Ban Treaty (CTBT).⁴⁹ India has been signaling the resumption of testing lately, both at UN and in the literature by its intelligentsia.⁵⁰

The Indo-US nuclear deal of 2008 was a major setback to international non-proliferation efforts. Despite India being an NPT

47. Kristensen, Hans M. Korda, Matt. "Nuclear Notebook: How many nuclear weapons does Pakistan have in 2021?" Bulletin of Atomic Scientists, September 7, 2021. <https://thebulletin.org/premium/2021-09/nuclear-notebook-how-many-nuclear-weapons-does-pakistan-have-in-2021/>.

48. Kristensen. "Nuclear Notebook."

49. Nayyar, A. H. "A Pakistani Perspective on nuclear disarmament and non-proliferation." Friedrich Ebert Stiftung Briefing Paper # 9, August 2008. <https://library.fes.de/pdf-files/iez/global/05652.pdf>.

50. New Universal Support for CTBT at UN, 2022, <https://www.ctbto.org/news-and-events/news/near-universal-support-ctbt-first-committee>; CTBT and India's Options, Manpreet Sethi, IDSA Strat Analysis, https://ciaotest.cc.columbia.edu/olj/sa/sa_sep00sem01.html.

non-signatory, the US signed a civil nuclear deal with it and, shortly after, India was given a Nuclear Suppliers Group's (NSG) exemption. Some commentators believe that the exemption given to India has diminished its motivation to support arms control and disarmament measures.⁵¹ As a result of signing of Indo-US deal, India was able to procure nuclear technology from NSG members. It now has nuclear cooperation agreements with Britain, France, Russia, Australia, Canada, and South Korea. India is also spending extensively on its naval nuclear program, *Arihant*, equipped with K-15⁵² successfully completed its deterrent patrol in 2018 and INS *Arighat submarine* is expected to be commissioned in 2023.⁵³

India is also working on an Inter-continental Ballistic Missile (ICBM) Agni-V, which it tested in 2018. Work on Agni-VI has also started. In August 2021, India successfully tested its indigenous Nirbhay cruise missile (1000 kilometers range). It is also working on an air defense system, both indigenously and in collaboration with partner states. It has developed *Prithvi Air Defense* (PAD), *Advanced Air Defense* (AAD) (Indigenous), *Ashwin missiles*, and *Barak-8 missile defense systems* (in collaboration with Israel). In 2018, it signed a deal with Russia for purchasing S-400 anti-missile system. It is also eager to collaborate with the US for developing National Advanced Surface-to-Air Missile System II (NASAMS) in India.⁵⁴

Pakistan has also been working on its nuclear capabilities. It has tested its missiles periodically. A significant development in this regard was the introduction of a short-range ballistic missile

51. Jaspal, Zafar Nawaz. "Indo-US Nuclear Deal: Altering Global Nuclear Order." *Strategic Studies* 28, no. 2/3 (2008): 18-38.

52. Jaspal. "Indo-US Nuclear Deal."

53. "Indo-US Nuclear."

54. "India set to conduct first user trial of 5,000-km range Agni V Missile." September 23, 2021. <https://economictimes.indiatimes.com/news/defence/india-set-to-conduct-first-user-trial-of-5000-km-range-agni-v-missile/videoshow/86450106.cms?from=mdr>.

Hatf IX Nasr in April 2011, and testing MIRV capable *Ababeel* in 2017. *Raad –II*, Air Launched Cruise Missile (ALCM) was test-launched in February 2021. In 2018, Pakistan successfully tested Submarine-launched Cruise Missile, *Babar-III*. Shaheen-III (2,750 kilometers) was tested in January 2021⁵⁵ and Ghaznavi (290 kilometers) in February 2021. In the same month, Babar Cruise Missile (450 kilometers) was tested,⁵⁶ Shaheen-I (900 kilometers) was tested in March 2021.⁵⁷ The most recent test was conducted in August, 2021 of Ghaznavi (290 kilometers).⁵⁸ Pakistan is purchasing eight *Hangor class submarines* from China, scheduled to be delivered this year.⁵⁹ Besides, Pakistan is negotiating with Egypt for the acquisition of 36 Mirage V aircraft.

India's arms build-up, qualitative enhancement of its nuclear and conventional arsenals, deployment of advanced system, and a considerable defense budget (USD 49.71 billion in 2021)⁶⁰ increase Pakistan's security concerns. To enhance its security, Pakistan allocated PKR 1,289 billion (2020-21) to the defense sector. The defense budget has increased by 11.9 percent in 2020-21. However, compared with the 2019-20 revised spending, which was PKR 1,227 billion, the growth is about 5 percent.⁶¹

55. Hashim, Asad. "Pakistan Successfully tests medium-range Missiles." Al Jazeera, January 2021. <https://www.aljazeera.com/news/2021/1/21/pakistan-says-medium-range-missile-test-a-success>.

56. "Pakistan Successfully Test-fires Ghaznavi Ballistic Missile." The Express Tribune, February 2021. <https://tribune.com.pk/story/2282515/pakistan-successfully-test-fires-ghaznavi-ballistic-missile>.

57. "Pakistan Conducts Successful launch of Shaheen-1 ballistic missile: ISPR." The Express Tribune. March 2021. <https://tribune.com.pk/story/2291631/pakistan-conducts-successful-test-launch-of-shaheen-1-a-ballistic-missile-ispr>.

58. Siddiqui, Naveed "Pakistan Successfully Test-Fires Surface to Surface Ballistic Missile Ghaznavi." Dawn, August 2021. <https://www.dawn.com/news/1640266>.

59. Mills, Claire. "Nuclear Weapons at a Glance: India and Pakistan. House of Commons Library." Briefing Paper # 9070, December 2020.

60. Raghuvanshi, Vivek. "India releases Detail of new defense budget." Defense News, January 2021. <https://www.defensenews.com/global/asia-pacific/2021/02/02/india-releases-details-of-new-defense-budget/>.

61. Bano, Sher. "Pakistan's military spending and defense budget 2020-2021." Modern Diplomacy, July 2020. <https://modern diplomacy.eu/2020/07/14/pakistans-military-spend->

The proposed Fissile Material Cutoff Treaty (FMCT) aims to cut off production and stockpiles of uranium and plutonium. Pakistan and India have different approaches to FMCT and have raised their concerns accordingly. Pakistan's nuclear program is solely for deterring Indian aggression. Pakistan is also much concerned about disparities with India in fissile material and conventional force. It has therefore made signing of FMCT conditional to addressing the issue of existing stock of fissile material and production in the future.⁶² Nuclear modernization and the defense budgets of the two South Asian neighbors indicate that, like major nuclear powers, national security is more important for them than international obligations. Both have not signed NPT and the chances of them joining the FMCT and CTBT are also bleak.

Trends in the Middle East

Middle East is another important geographical region that is vulnerable to nuclear proliferation. Presently, Israel is the only Middle Eastern country with nuclear weapons, though it has not formally declared itself a nuclear weapon state. Sufficient information is not available in open sources about Israel's nuclear capabilities and modernization program but there is consensus among the policy makers and scholars that Israel⁶³ became a nuclear capable state in the 1960s. It is believed to have almost 90 plutonium-based warheads and enough plutonium reserves to produce another 100-200 warheads.⁶⁴ In a declassified 1969 memo, Israel had assured the American President that it would not be the first country in the region to develop nuclear weapons.⁶⁵ But contrary

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62. Rajen, Gaurev. Vannoni, Michael. "Fissile Materials Control in South Asia: Regional Analysis and Potential Confidence Building Measures." Sandia National Laboratories, February 2006.

63. Fabian, Emanuel. "Israeli Navy Declares Ship-mounted Version of Iron Dome Operational." The Times of Israel, 17 November 2022. <https://www.timesofisrael.com/israeli-navy-declares-ship-mounted-version-of-iron-dome-operational/>.

64. Fabian. "Israeli Navy Declares Ship-mounted."

65. "Israeli Navy Declares."

then President Trump announced US withdrawal from Iran's nuclear deal as, according to him, Iran had not agreed to suspend its missile program and could resume its nuclear weapon program after fifteen years, as per JCPOA provisions.⁷¹ With the election of President Joe Biden in 2020, hopes for the revival of JCPOA were raised. Several rounds of talks between the US and Iran were held but no breakthrough is in sight yet.⁷²

Trends in the Korean Peninsula

The Korean Peninsula is another region of concern for non-proliferation advocates. North Korea conducted successful nuclear tests in 2006, after which strict economic sanctions and arms embargos were imposed on it by the UN. Despite global pressures, North Korea continued with its nuclear program and successfully tested its submarine launched ballistic missile in 2016 and ICBM in July 2017. It also conducted a thermonuclear test in September of the same year. The year 2020 saw extensive diplomatic activities between North Korea and the US.⁷³ North Korea stated its resolve for complete denuclearization of the Korean Peninsula following a summit meeting with the then US President Donald Trump and President of North Korea in Singapore in 2018. However, contrary to its public commitment, North Korea tested a short-range ballistic missile in 2019. Responding to North Korea's nuclear ambitions, its archrival South Korea is spending heavily

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71. Landler, Mark. "Trump Abandons Iran's Nuclear Deal: He Long Scorned." The New York Times, May 2018. <https://www.nytimes.com/2018/05/08/world/middleeast/trump-iran-nuclear-deal.html>.

72. Zamirirad, Azadah. "Iran's shifting nuclear debate and the shrinking space for diplomacy." RUSI, February 2021. <https://rusi.org/commentary/irans-shifting-nuclear-debate-and-shrinking-space-diplomacy>.

73. Stallard, Katie. "Donald Trump's North Korea Gambit: What Worked, What Didn't, and What's Next." Wilson Center, Nov 26, 2020. <https://www.wilsoncenter.org/blog-post/donald-trumps-north-korea-gambit-what-worked-what-didnt-and-whats-next>.

on military modernization⁷⁴ and is also ready to start working on its nuclear-powered submarines.⁷⁵ For 2021, South Korea announced USD 48 billion for defense sector, with an increase of 5.4 percent to the previous fiscal year allocation.⁷⁶ Besides, intense discussions are going on in its political circles that South Korea should seriously consider developing its own nuclear deterrent.

Future of Arms Control Treaties

The Treaty on the Prohibition of Nuclear Weapons (TPNW) prohibits the development, deployment, possession, use of and the threat to use nuclear weapons. Its key conditions also ban stationing nuclear weapons on states parties' territories, as well as assistance, encouragement or inducement of any activity prohibited by the treaty. An important aspect of the treaty is that it makes possession and proliferation of these weapons illegal for every political unit of international system.⁷⁷ The NPT, on the contrary, gives leverage to major powers by accepting their legitimacy as NWS.⁷⁸ America, Russia, China, UK, and France opposed the treaty and boycotted TPNW negotiations of 2017.⁷⁹ Reacting to TPNW, Pakistan's Foreign Office stated that it "Did not consider itself bound by the treaty. It was discussed outside of the usual UN disarmament negotiating platforms, with no nuclear-armed

74. "A Quiet Arms Race is Rapidly Heating in the Two Koreas." *The Economic Times*, April 2021. <https://economictimes.indiatimes.com/news/defence/a-quiet-arms-race-is-rapidly-heating-up-between-the-two-koreas/articleshow/82142376.cms>.

75. "Korean Peninsula: Nuclear Weapons Plans trigger arms race fear." <https://www.dw.com/en/korea-military-plans-stoke-tensions/a-56222449>.

76. Grevatt, Jon. MacDonald, Andrew. "South Korea increase defense budget for 2021." *JANES*, December 2020. https://www.janes.com/defence-news/news-detail/south-korea-increases-defence-budget-for-2021_14039.

77. Ritchie, Nick. Kmentt, Alexander. "Universalizing the TPNW: Challenges and Opportunities." *Journal for Peace and Nuclear Disarmament* 4, no. 1 (2021): 70-93.

78. Erästö, Tytti. "The NPT and the TPNW: Compatible and Conflicting Nuclear Weapon Treaties." *SIPRI*, 2019. <https://www.sipri.org/commentary/blog/2019/npt-and-tpnw-compatible-or-conflicting-nuclear-weapons-treaties>.

79. Green, Michael Hamel. "The Nuclear Bann Treaty and 2018 nuclear disarmament forum: An initial impact Assessment." *Journal for Peace and Nuclear Disarmament*, 1, 2 June 2018. <https://www.tandfonline.com/doi/full/10.1080/25751654.2018.1516493>.

states participating in the discussions, including Pakistan, so it failed to consider the legitimate interests of the concerned stakeholders.”⁸⁰ Indian Ministry of External Affairs reacted similarly by stating, “India didn’t participate in the negotiation on TPNW [and] will never be a party to it.”⁸¹ Interestingly, the stance of de facto nuclear states is not different from de jure nuclear powers in respect of the TPNW. In 2021, the treaty entered into force with 86 signatories. Most of TPNW signatories are unhappy with non-implementation of Article VI of NPT by NWS.⁸² Although 86 states parties is a large number, the possibility of its success is grim because no nuclear power is party to the treaty.

The last major bilateral arms control agreement between the US and Russia is New START,⁸³ which was extended in February 2021 for another five years. The demise of INF treaty and Open Skies treaty⁸⁴ shows that the era of bilateral nuclear weapons limitation agreements between Russia and the US may be coming to an end. The global threat environment and evolving balance of power dynamics have changed considerably in the last decade or so. The US and Russia now contribute to putting the non-proliferation regime in jeopardy more than ever before. Consequently, the international system now appears to be far more conflict prone.

Russia and the US had agreed to start negotiations on arms

80. Siddiqi, Naveed. “Pakistan not bound by the treaty for prohibition of nuclear weapons: FO.” Dawn, January 2021. <https://www.dawn.com/news/1604317>.

81. “India says it does not support Treaty on Prohibition of Nuclear Weapons.” Financial Express, January 2021. <https://www.financialexpress.com/defence/india-says-it-doesnt-support-treaty-on-nuclear-weapon-prohibition/2177018/>.

82. Asada, Masahiko. “The TPNW and the future of non-proliferation and disarmament.” Hiroshima for Global Peace. (nd). <https://hiroshimaforpeace.com/en/hiroshimareport/report-2018/column4/>.

83. Reif, Kingston. “New START at a Glance.” Arms Control Association, (2020). (<https://www.armscontrol.org/factsheets/NewSTART>).

84. Rajagopalan, Rajeswari Pillai. “Implications of the US Withdrawal from the Open Skies Treaty.” The Diplomat, 2020. <https://thediplomat.com/2020/05/implications-of-the-us-withdrawal-from-the-open-skies-treaty/>.

control in November 2022,⁸⁵ but the former postponed the scheduled talks at the eleventh hour. Tensions have grown between Russia and the US after the Ukraine war. Neither state is showing any signs of restarting talks over strategic stability issues. A consensus on these issues could help avoid misunderstandings and escalation.⁸⁶ Deteriorating relations of the US with Russia and China have now become another obstacle in the way of result-oriented nuclear disarmament efforts. Additionally, Russia and the US have expressed their intent to resume nuclear testing and modernize their existing stockpile, which would be a severe blow to global nuclear efforts.⁸⁷ This trend may create space for other countries to follow suit.

A responsible role by recognized nuclear powers, as they had vowed during discussions on the NPT, is crucial for global disarmament and has become overdue. These *de jure* nuclear powers influence the policies of other nuclear armed nations. Smaller NWS and NNWS are threatened in an uncertain global political environment and strategic policies of the nuclear weapon states. The external security environment discourages governments from signing the NPT. As is evident in global politics, a state's vital security interests remain predominant over international obligations. Each side continues to expect more from the other to ensure its national security before further progress on non-proliferation and disarmament processes.

Flaws in the NPT

More than 75 years after the Hiroshima and Nagasaki atomic

85. Atwood, Kylie. Hansler, Jennifer. "Russia postpones nuclear arms control talks with US, State Department says." *CMN*, November 28, 2022. <https://edition.cnn.com/2022/11/28/politics/us-russia-arms-control-talks/index.html#:~:text=Both%20the%20US%20and%20Russia%20have%20expressed%20a%20desire%20to,START%20is%20slated%20to%20expire>.

86. Sverre, Lodgaard. "Nuclear Disarmament and Non-Proliferation: Towards a Nuclear-Weapon-Free World?" Taylor & Francis, 2010.

87. Sverre. "Nuclear Disarmament and Non-Proliferation."

bombings, and thirty years after the end of the Cold War, progress on nuclear arms control and disarmament has nearly stalled as NWS are now focusing on modernizing and maintaining large inventories of nuclear weapons.⁸⁸ In reality, all nuclear-armed states are focused on vertical proliferation. Different mechanisms have been put in place to control the horizontal proliferation of nuclear weapons, but vertical proliferation of these weapons remains beyond any internationally recognized controls. Vertical arms built-up creates security dilemma for smaller states, prompting them to react in a similar way. The best example of this scenario is South Asia, where India's nuclear modernization is pressing Pakistan to shore up its nuclear deterrent.

Another flaw of the NPT is that it is regarded as discriminatory by the developing world. Most developing and underdeveloped states argue that if the P5 are allowed to have nuclear weapons based on their national security and interests, smaller powers should also have the legal right to possess the ultimate weapon if their survival is at stake. De facto nuclear weapon states on the other hand, are unwilling to join the treaty because it only considers the P5 as nuclear powers and if they decide to sign the treaty, they can only do so after rolling back their own nuclear programs. This is not acceptable to them for national security reasons.

Conclusion

For the foreseeable future, emerging nuclear “disorder” will be the new nuclear normal. Nuclear and strategic orders are essentially intertwined and cannot be de-hyphenated. The political interests of major powers will therefore continue to shape the nuclear order. The ongoing trends of discrimination and exceptionalism could unravel the existing NPT-based nuclear non-proliferation regime, with serious consequences for international security.

88. Wade, Boese. “UN nuclear disarmament debate stalled.” *Arms Control Today* 34, no. 10 (2004): 39.

The political space for nuclear non-proliferation and disarmament has become constrained, nuclear reduction efforts have slowed down, and nuclear arms control negotiations (bilateral or multilateral) have stalled. Continued vertical nuclear proliferation, Russia-US relations, nuclear arms competition in South Asia, and rising tensions in Northeast Asia, have now emerged as the major hurdles to non-proliferation and disarmament (NPD) efforts. Major nuclear weapon states' actions are in sharp contradiction to their commitments. The political will and leadership of NWS can effectively contribute to arms control. Additionally, the NPT depends much on the good faith of the parties involved specifically P5 rather than a transparent enforcement mechanism.

To make the non-proliferation regime more effective, legitimate nuclear states must set an example for smaller states by implementing their global commitments. Apart from this, the international community must pay special attention to the security of smaller states as doing so would greatly contribute to the success of global counter-proliferation efforts.

In South Asia, India is given special privileges in violation of NPT safeguards, which raises serious questions regarding the fate of the NPT regime. Moreover, despite an uncertain future of the nuclear non-proliferation regime and technology denials, Pakistan is expected to continue abiding by the existing global non-proliferation norms. As a result of Indian hegemonic aspirations and technological acquisitions, maintaining the policy of Credible Minimum Deterrence remains the principal factor guiding Pakistan's national defense policy. The responsibility of purging the world of nuclear weapons and sharing high-end technology with NNWS for peaceful purposes, while ensuring that it does not contribute to the development of WMDs, solely rests on the recognized nuclear powers.