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Nuclear Deterrence

and National Security in the Twenty First Century

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Amna Saqib and Samran Ali[1]

Abstract

Using nuclear weapons has been a subject of intense debate in international affairs, eliciting ethical, political, and security concerns. Among these concerns, security is the primary motivation driving states to pursue nuclear capabilities. This research paper explores the concept of the structural realist theory of international relations to examine the significance of nuclear weapons in ensuring the survival of a state. According to this theory, possessing nuclear capabilities is a potent deterrent against potential adversaries. This study critically evaluates the credibility of nuclear deterrence in the present-day context, considering various factors such as technological advancements, the proliferation of nuclear weapons, and emerging security challenges. Furthermore, it investigates the intricate dynamics of regional nuclear rivalries and their consequential impact on national security calculations. The research uses case studies of North Korea and Ukraine, analyzes the facets of their nuclear programs, and sheds light on the complexities associated with nuclear proliferation. This paper aims to contribute to the ongoing discourse on nuclear weapons policy, global security, and arms control in the twenty-first century by critically examining the advantages, risks, and challenges associated with nuclear deterrence.

Keywords: Nuclear Weapons, Deterrence, National Security, Nuclear Weapons States, Mutually Assured Destruction.

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Introduction

Nuclear weapons have played an instrumental role in the post-World War II (WWII) international security framework by ensuring peace and stability at various levels, especially at the strategic level. Nuclear optimism has held its ground for the last seven decades. In this regard, the theory of nuclear revolution has wholly altered the interplay between the cost and benefits of war. Nuclear war is unwinnable, and nobody stands to gain anything from it. With the presence of nuclear weapons, states have accepted to live with the status quo, realizing that they cannot change it by force. This realization has translated into a more peaceful and stable environment.

Likewise, nuclear weapons have contributed to the national survival of smaller states which possess them. They act as a power equalizer between a smaller and a major power. A nuclear weapons state (NWS) with more external threats is less likely to be attacked or invaded than a non-nuclear weapons state (NNWS) with lesser external threats.[2] The world being anarchic in nature, self-reliance remains the only way for states to ensure their survival – nuclear weapons ensure the survival of states in this anarchic international system.

State survival is undeniably the principal reason behind the acquisition of nuclear weapons. Based on the argument that nuclear weapons play an essential role in the survival of states, this study focuses on both NWS and NNWS. Case studies of North Korea and Ukraine have been conducted that examine the ongoing trends and debate about the role of nuclear weapons in ensuring the security of states, especially after the emergence of the Russia-Ukraine crisis.

Theoretical Framework

The realist perspective claims that the anarchic nature of the international system allows states to compete, and it is difficult for them to remain isolated in a competitive environment. The term anarchic means that no central authority can enforce rules. Hence, a state must contemplate self-reliance strategies to guarantee comprehensive security, as the responsibility for safeguarding its sovereignty ultimately rests upon itself.

2. Susan B. Martin, (2013) "The Continuing Value of Nuclear Weapons: A Structural Realist Analysis," *Contemporary Security Policy* 34, no. 1 (2013): 174–94, https://doi.org/10.1080/13523260.2013.771042.

The absence of an overarching central authority or world government to enforce rules and maintain world order leads states to struggle with power to ensure their survival in an anarchic world. Two primary forms of structural realism, i.e., offensive and defensive realism, agree that survival is a crucial driver for any state. Defensive realism claims that the international system does not have an overly competitive structure, and cooperation and self-restraint will be the best choice for a state.[3]

Contrary to this, offensive realism suggests that states favor competition and conflict because of their self-interest and power maximization. Moreover, it argues that states must behave this way to ensure their survival in the international system. In other words, to survive, maximizing power is the first measure of security.[4]

With the development of nuclear technology for military purposes, the world witnessed the most destructive weapon ever, which could destroy a complete city in the blink of an eye. Being the most terrifying weapons, they provide the possessor with immense strength and stability. The strength works both ways – having the capability to attack an adversary, and the will to launch an attack if a state's sovereignty and territorial integrity are threatened. The fact that neither side will benefit from launching a nuclear war may result in the absence of war.[5]

The theory of nuclear revolution argues that nuclear-weapon states are less likely to engage in interstate conflict as they are deterred from doing so by the fear of mutual destruction.[6] Three powerful concepts form the bases of this argument. First, the concept of mutually assured destruction (MAD), makes the cost of conflict too high and unaffordable. Second, the military victory concept is no

3. Steven E. Lobell, "Structural Realism/Offensive and Defensive Realism," Oxford Research Encyclopedia of International Studies, 2017, https://doi.org/10.1093/acrefore/9780190846626.013.304.

4. Stephen M. Walt, "Realism and Security," Oxford Research Encyclopedia of International Studies, 2017, https://doi.org/10.1093/acrefore/9780190846626.013.286.

5. "The Future of Arms Control, Strategic Stability, and the Global Order: A Conversation with Sir Stephen Lovegrove, UK National Security Adviser," Center for Strategic and International Studies, July 27, 2022, https://www.csis.org/events/future-arms-control-strategic-stability-and-global-order.

6. Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989).

longer possible in a nuclear environment. The third concept is that maintaining the status quo is easier than changing it. So, the primary purpose of military powers has transformed into prevention of wars rather than winning them.[7]

The Cold War was an example that proved this notion correct. The possession of assured second-strike capability by the two superpowers, the then Union of Soviet Socialist Republics (USSR) and the United States (US), deterred them from fighting a direct war and ensured peace. The assured second-strike capability on both sides meant that they could survive a preemptive first strike and possessed the ability to launch a second strike. Prior to the ongoing Russia-Ukraine crisis, there had been no major war in Europe after the two world wars. It was mainly due to nuclear deterrence among the United Kingdom (UK), France, and the USSR, despite competing ideologies, diverging world views, and aggressive nuclear doctrines and policies. Irrespective of the destruction caused by the first and the only use of nuclear weapons in 1945 by the US against the Japanese cities of Hiroshima and Nagasaki,[8] a period of relative stability prevailed worldwide, also due to the key states' decision to formalize regimes and norms to negotiate issues.[9]

The continued reliance on nuclear weapons, as evident from the nuclear-weapon states' doctrines and policies, reinforces the idea that nuclear weapons strengthen national security and survival. Nuclear deterrence continues to hold itself. Realizing the utility of these weapons, the US, Russia, China, and others have retained them despite commitments to disarm. Even the non-nuclear NATO countries believe in the credibility and efficacy of nuclear weapons once they enjoy US nuclear umbrella. A continued debate in these states, such as South Korea and Japan, about the prospects of acquiring nuclear weapons in case of losing extended deterrence, demonstrates the importance of nuclear deterrence for a state's national security.[10]

7. Frederick S. Dunn et al., *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt, Brace and Co., 1946).

8. "Bombing of Hiroshima and Nagasaki," *History*, November 18, 2009, https://www.history.com/topics/world-war-ii/bombing-of-hiroshima-and-nagasaki.

9. Charles S. Maier, "The Two Postwar Eras and the Conditions for Stability in Twentieth-Century Western Europe," American Historical Review, January 1, 1981, http://nrs.harvard.edu/urn-3:HUL.InstRepos:4727674.

10. Ivo H. Daalder et al., "Preventing Nuclear Proliferation and Reassuring America's Allies," *The Chicago Council on Global Affairs*, February 10, 2021, https://www.thechicagocouncil.org/

Can Conventional Weapons Deter War?

Nuclear weapons are means of deterrence and war avoidance while conventional weapons, in essence, are mainly used for fighting a war. The same goes for the psychology attached to these weapons. A state cannot coerce its adversary into taking or not taking an action using the threat of a conventional strike as effectively as with the threat of nuclear use.[11] The consequences and the fear of conventional weapons once used cannot be compared with the threat of nuclear weapons use – both circumstances have different consequences, including military, political, economic, and societal dimensions. Although it might be possible to deal with the consequences of a conventional war, a nuclear exchange can incur massive destruction in a matter of seconds making any post-war measures impossible. The psychological impact of a possible nuclear war also deter states leaders from fighting even conventional wars.

There has been a debate that the nuclear-weapon states should disarm themselves, build strong economies, and invest in conventional weapons instead.[12] This argument needs to be revised. During the twentieth century, before the advent of nuclear weapons, the European militaries possessed strong and advanced conventional forces of those times, and their economies were equally strong, yet, the world saw two major world wars. During those wars and the inter-war period, the European and American militaries churned out advanced weapons rapidly, which only prolonged the war, bringing more destruction and devastation.

The conventional versus nuclear debate, according to Kenneth Waltz is about "the world's destruction, [when] one may prefer a world of conventional great powers having a higher probability of fighting less destructive wars to a world of nuclear great powers having a lower probability of fighting more destructive wars."[13]

The post-WWII era witnessed adversarial US-USSR relations. There

research/report/preventing-nuclear-proliferation-and-reassuring-americas-allies.

11. Michael S. Gerson, "Conventional Deterrence in the Second Nuclear Age," *Parameters* 39, no. 3 (2009), https://doi.org/10.55540/0031-1723.2486.

12. Christopher Ford, "Conventional 'Replacement' of Nuclear Weapons?" *Hudson Institute*, November 17, 2010, https://www.hudson.org/national-security-defense/conventional-replacement-of-nuclear-weapons.

13. Kenneth N. Waltz, "The Spread of Nuclear Weapons: More May Be Better," *The Adelphi Papers* 21, no. 171 (1981), https://doi.org/10.1080/05679328108457394.

were many instances when the two countries were on the brink of war during the Cold War period. The Cuban Missile Crisis was the most significant event when the world came near to nuclear deterrence breakdown between them.

However, the logic of nuclear deterrence and MAD pushed them toward dialogue.[14] They entered into several agreements and treaties to limit and reduce nuclear weapons to predict each other's behavior. These included the Anti-Ballistic Missile (ABM) Treaty, the Strategic Arms Reduction Treaty (START I), Strategic Offensive Reductions Treaty (SORT or Moscow Treaty), and the New START. The presence of nuclear weapons and the conclusion of many arms control treaties kept US-USSR relations stable during the Cold War and even after it ended. The current multipolar world system, including China as a key stakeholder, is witnessing new debates on preservation of global strategic stability.[15]

Increasing Salience of Nuclear Weapons in National Security Strategies

The nuclear-weapon states are enhancing the relevance of nuclear weapons in their national security strategies, both qualitatively and quantitatively. According to SIPRI Yearbook 2022, global nuclear stockpiles will increase in the next decade for the first time since the end of the Cold War.[16]

It is important to study the American strategy is this regard. The US Nuclear Posture Review (NPR) under the Trump administration enhanced the scope of nuclear weapons in national defense by including "new non-nuclear attacks that could have strategic effects: catastrophic mass casualties, cyberattacks against US infrastructure, chemical or biological attacks, or attacks against US critical space ca-

14. Alexey Arbatov, "Nuclear Deterrence: A Guarantee or Threat to Strategic Stability?" Carnegie Endowment for Peace, March 22, 2019, https://carnegiemoscow.org/2019/03/22/nuclear-deterrence-guarantee-or-threat-to-strategic-stability-pub-78663.

15. Matthew Kroenig and Mark J. Massa, "Toward Trilateral Arms Control: Options for Bringing China into the Fold," Atlantic Council, February 4, 2021, https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/toward-trilateral-arms-control-options-for-bringing-china-into-the-fold/.

16. "Global Nuclear Arsenals Are Expected to Grow as States Continue to Modernize," SIPRI, June 13, 2022, https://sipri.org/media/press-release/2022/global-nuclear-arsenals-are-expected-grow-states-continue-modernize-new-sipri-yearbook-out-now.

pabilities."[17] This was a clear departure from the strategies of Obama administration which campaigned for reducing the role of nuclear weapons in national security.[18]

The 2010 US NPR focused on reducing the role of nuclear weapons and nuclear safety and security and preventing nuclear proliferation and terrorism. Obama's efforts resulted in Nuclear Security Summits[19] from 2010 to 2014 but failed to deliver on the reducing role of nuclear weapons and continued the modernization of the US nuclear forces.[20]

In 2021, the US was estimated to spend a total of USD 634 billion over the next ten years to sustain and modernize its nuclear arsenal. It is developing new ballistic missile submarines, new Intercontinental Ballistic Missiles (ICBMs), a strategic bomber fleet, and new cruise missiles besides the upgradation of its nuclear command and control infrastructure.[21] It is worth mentioning that much of the US nuclear modernization was happening in the Obama era despite advocating the reducing the role of nuclear weapons globally.

Similarly, Russia and China are advancing their nuclear warheads and delivery systems.[22] Russia is developing new ICBMs, nuclear-propelled cruise missiles, and hypersonic missiles, among other weapons systems.[23] China is increasing the number of its ballistic

17. Daryl G. Kimball, "Trump's More Dangerous Nuclear Posture," Arms Control Association, January 2018, https://www.armscontrol.org/act/2018-01/focus/trumps-more-dangerous-nuclear-posture.

18. James E. Doyle, "Nuclear Weapons: A Record That Falls Short of Lofty Ambitions," *Arms Control Today,* December 2016, https://www.armscontrol.org/act/2016-11/features/nuclear-weapons-record-falls-short-lofty-ambitions.

19. "Nuclear Security Summit at a Glance," Arms Control Association, June 2018, https://www.armscontrol.org/factsheets/NuclearSecuritySummit.

20. Scot Paltrow, "Special Report: In Modernizing Nuclear Arsenal, U.S. Stokes New Arms Race," *Reuters*, November 21, 2017, https://www.reuters.com/article/us-usa-nuclear-modernize-specialreport-idUSKBN1DL1AH.

21. "US Nuclear Modernization Programs," Arms Control Association, January 2022, https://www.armscontrol.org/factsheets/USNuclearModernization.

22. R. Jeffrey Smith, "Under Trump, the Nuclear Weapons Industry Has Boomed," Public Integrity, December 23, 2020, https://publicintegrity.org/national-security/future-of-warfare/under-trump-the-nuclear-weapons-industry-has-boomed/.

23. Rose Gottemoeller, "Russia Is Updating Their Nuclear Weapons: What Does That Mean for the Rest of Us?" Carnegie Endowment for International Peace, January 29, 2020, https://carnegieendowment.org/2020/01/29/russia-is-updating-their-nuclear-weapons-what-does-that-mean-for-rest-of-us-pub-80895.

missile submarines and silos-based missiles and increasing its nuclear warheads arsenal to ensure the survivability of its nuclear systems in case of a US first-strike.[24] The UK has decided to increase the number of nuclear warheads to 260.[25] Much like others, France is developing its third generation of nuclear-powered ballistic missile submarines to keep its nuclear deterrent credible beyond the middle of this century.[26]

India is also increasing its nuclear arsenal and is stockpiling large quantities of weapons-grade highly enriched uranium (HEU) and plutonium (Pu) with a potential to make 2261 to 2686 nuclear weapons, according to a Belfer Center study.[27]

The situation of US-Russia arms control and reduction measures requires a major overhaul. During the past three decades, their arms control treaties like START I and II, SORT, and NEW START have ensured reduction of the nuclear arsenal on both sides.[28] The New START is expiring in February 2026, but a new treaty has yet to be discussed. They have abrogated the Intermediate-Range Nuclear Forces (INF) Treaty, which eliminated their ground-launched ballistic and cruise missiles within 500-5000 kilometers range. Both countries are free to develop those weapons now. It is also pertinent to mention that both countries maintain an arsenal of non-strategic nuclear warheads that are not restricted by any arms control treaty. Moreover, while the US insists on China's inclusion in US-Russia bilateral arms control setup, China counterargues whether it should increase its smaller nuclear arsenal to achieve parity with both or they themselves will bring their numbers down.

24. Shannon Bugos, "Pentagon Sees Faster Chinese Nuclear Expansion," Arms Control Association, December 2021, https://www.armscontrol.org/act/2021-12/news/pentagon-sees-faster-chinese-nuclear-expansion.

25. James McKeon, "Reversing Course: The UK's Decision to Increase the Cap on Nuclear Warheads," NTI, March 18, 2021, https://www.nti.org/atomic-pulse/reversing-course-the-uks-decision-to-increase-the-cap-on-nuclear-warheads/.

26. Timothy Wright, "Counting the Cost of Deterrence: France's Nuclear Recapitalization," IISS, May 14, 2021, https://www.iiss.org/blogs/military-balance/2021/05/france-nuclear-recapitalisation.

27. Mansoor Ahmed, "India's Nuclear Exceptionalism."

28. "U.S.-Russian Nuclear Arms Control Agreements at a Glance," Arms Control Association, https://www.armscontrol.org/factsheets/USRussiaNuclearAgreements.

Extended Deterrence

Extended deterrence is the security guarantee provided by a nuclear-weapon state to its non-nuclear ally against aggression by the latter's adversary. There are two goals of extended deterrence. First is the assurances to the allies of their protection, and second is the signaling of resolve and commitment to the adversaries to create fear.[29]

The US is the only nuclear-weapon state that has given assurances of nuclear support to its allies in case they are attacked. It has given this assurance to its NATO allies, and South Korea, Japan, and Australia.[30] The concept of nuclear umbrella was accepted by states because they believe in the credibility of nuclear weapons to deter conventional or nuclear strikes against them. Extended deterrence has worked somewhat in Europe, given the absence of aggression against the countries protected under the nuclear umbrella.

However, South Korean and Japanese schools of thought are considering the prospects of developing their independent nuclear deterrence.[31] Their public and media support the idea. Both are technologically advanced states and making their own bombs would be a matter of time if a political decision is made.[32] Japan is the only non-nuclear-weapon state that developed a complete nuclear fuel cycle and relevant industries.[33]

The crisis in Ukraine has fueled the debate about developing nuclear weapons for national security and not singularly relying on the negative security assurances made by nuclear-weapon states.[34] Considering the role of nuclear deterrence in strengthening alliances, Russia is

29. Michael J. Mazarr, "Understanding Deterrence," *Netherlands Annual Review of Military Studies*, 2020, 13–28, https://doi.org/10.1007/978-94-6265-419-8_2.

30. "Extended Deterrence," Airforce Doctrine Publication, December 18, 2020, https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-72/3-72-D12-NUKE-OPS-Extended-Deterrence.pdf

31. Toby Dalton, Byun Sunggee, and Lee Sang Tae, "South Korea Debates Nuclear Options," Carnegie Endowment for International Peace, April 27, 2016, https://carnegieendowment.org/2016/04/27/south-korea-debates-nuclear-options-pub-63455.

32. Kyle Mizokami, "Surprise: Japan Could Quickly Build Nuclear Weapons in a Crisis," The National Interests, July 21, 2021, https://nationalinterest.org/blog/reboot/surprise-japan-could-quickly-build-nuclear-weapons-crisis-190089.

33. "Japan," NTI, https://www.nti.org/countries/japan/.

34. Rupert Wingfield-Hayes, "Will Ukraine Invasion Push Japan to Go Nuclear?" *BBC*, March 26, 2022, https://www.bbc.com/news/world-asia-60857346.

mulling the provision of nuclear cover to Belarus and Armenia.[35] China does not possess a large arsenal of nuclear weapons and has no motivation for providing a nuclear cover to any other state.[36]

Cases of North Korea and Ukraine

The importance of nuclear weapons for the security of a country can be put into two categories. First comprises countries that have successfully developed nuclear weapons for ensured security. Second category is of the states that avoided developing nuclear weapons or dismantled their nuclear weapon program in early stages due to external pressure or security assurances – such states seem to be at a disadvantageous position. As studied in the subsequent case studies, countries like North Korea have developed nuclear weapons, and their security status is different from the countries that gave them up. For instance, Ukraine and Libya face serious challenges of internal stability and national security. In this regard, the case of Ukraine and North Korea has been evaluated to decipher the link between nuclear weapons and state survival.

North Korea

The Korean peninsula has emerged as a prominent focal point in the 21st century, characterized by various forms of conflict, such as conventional provocations, asymmetric warfare, missile and nuclear threats, terrorist activities, and cyber distributed denial-of-service (DDoS) attacks. North Korea's nuclear program has been a concern for the international community for decades. It is perceived as a state that challenges established international norms and poses a risk to regional stability due to its pursuit of nuclear weapons. However, defensive realists see this behavior as a rational response to the country's so-called security dilemma.

The genesis of North Korea's nuclear program can be traced back to the Korean War (1950-1953),[37] a conflict that led to the partitioning of the Korean Peninsula into two states: North Korea, supported by

35. John Drennan, "Possible Russian Nuclear Deployments to Belarus Could Shift Europe's Nuclear Balance," United States Institute of Peace, June 30, 2022, https://www.usip.org/publications/2022/06/possible-russian-nuclear-deployments-belarus-could-shift-europes-nuclear.

36. "Remarks by H.E. Ambassador Li Song on Nuclear Disarmament," August 3, 2023, http://vienna.china-mission.gov.cn/eng/hyyfy/202308/t20230804_11122661.htm.

37. Donghyun Woo, "The Peaceful Origins of North Korea's Nuclear Programme in the Cold War Period, 1945–1965," *The Historical Journal* 66, no. 2 (2023): 459–79, https://doi.org/10.1017/s0018246x22000140.

China and the former USSR, and South Korea, backed by the US and its allies. Despite the war's conclusion with an armistice rather than a formal peace treaty, both sides remained technically in a state of war, perpetuating a persistent atmosphere of tension. The US maintained a significant military presence in South Korea and Japan, on the pretext of safeguarding its allies against potential aggression from North Korea, while extending its nuclear umbrella as a protective measure.

Without reliable alliances, the North Korean leadership adopted a "military-first" policy, emphasizing self-reliance and military strength as the cornerstone of their survival strategy.[38] Hence, if North Korea's leadership firmly believed that the most effective means to ensure their state's survival and deter potential threats from perceived adversaries was to enhance military capabilities by acquiring nuclear weapons, they could be making decisions that aligned with their national interests.

Despite enduring years of international condemnation, diplomatic efforts, and external pressure, North Korea has accumulated a substantial arsenal comprising dozens of nuclear weapons. Moreover, the country exhibits a clear intent to further expand its nuclear capabilities in terms of quantity and sophistication in the foreseeable future. Since its first nuclear test in 2006, North Korea conducted five more tests until 2017, boasting the successful testing of a thermonuclear device. Concurrently, it has developed a diverse range of ballistic missiles, spanning from short-range to intercontinental variants, effectively equipping it with the capacity to deliver nuclear warheads across regional and potential global targets. North Korea conducted over 100 missile launches in 2022, illustrating significant advancements in missile technology.[39]

Additionally, the state is augmenting its stockpile of fissile material through uranium enrichment and plutonium production programs. It is engaged in the development of more sophisticated delivery systems. North Korea's articulation of a nuclear posture that emphasizes its readiness to escalate conflicts is of particular concern. For

38. Choo Suk Shu, "North Korea's 'Military-First' Policy and Inter-Korean Relations," *Korean Journal of Defense Analysis* 14, no. 2 (September 2002): 167-85, http://dx.doi.org/10.1080/10163270209464031.

39. Hans M. Kristensen and Matt Korda, "North Korean Nuclear Weapons, 2022," *Bulletin of the Atomic Scientists* 78, no. 5 (2022): 273–94, https://doi.org/10.1080/00963402.2022.2109341.

this reason, the international community has consistently demanded the denuclearization of the Korean peninsula.[40] The intended outcome has not been achieved despite the numerous efforts by certain global powers and the UN Security Council (UNSC), employing both persuasive and coercive measures, to bring North Korea into compliance.[41]

Defensive realism offers insights for North Korea's behavior. In its context, North Korea's endeavor to acquire nuclear weapons is a rational and calculated approach to ensure its survival and deter potential threats from the US and its allies, that possess superior conventional and nuclear capabilities. North Korea has endured decades of international isolation, sanctions, and recurring military threats and provocations from South Korea and the US. Having cordial relations with no state but China, North Korea faces a challenging regional environment including persistent rivalries with Japan. North Korea believes that nuclear capability is the sole guarantee of its sovereignty and security.[42]

North Korea's reliance on nuclear weapons can be comprehended as a response to the security challenges the state faces, rather than an indication of irrationality or aggression. The primary objective appears to be not to instigate conflict or initiate hostilities against other states. Instead, it is a defensive measure to safeguard the regime's continuity and deter external interference. North Korea has also expressed willingness to engage in dialogue and diplomacy with other states if its security interests and sovereignty are respected.

Ukraine

In the wake of evolving regional tensions and external interventions, Russia announced its so-called "special military operation" against Ukraine on 24 February 2022.[43] This incident led to a lengthy debate

40. "Incremental Denuclearization on the Korean Peninsula," United States Institute of Peace, December 6, 2022, https://www.usip.org/publications/2022/12/incremental-denuclearization-korean-peninsula.

41. Michael A. Popoola, Deborah E. Oluwadara, and Abiodun A. Adesegun, "North Korea Nuclear Proliferation in the Context of the Realist Theory: A Review," *European Journal of Social Sciences* 58, no. 1 (May 2019): 75-82.

42. Manseok Lee and Sangmin Lee, "North Korea's Choice of a Nuclear Strategy: A Dynamic Approach," *Defense & Security Analysis* 36, no. 4 (2021): 377-97, https://doi.org/10.1080/14751798.2020.1858536.

43. "Russian Federation Announces 'Special Military Operation' in Ukraine as Security Coun-

on nuclear dimension based on several reasons. First is that Russia is a nuclear-weapon state. Second is Ukraine's decision to give up its nuclear arsenal after the disintegration of USSR. The USSR had deployed strategic weapons in three of its republics – Belarus, Ukraine, and Kazakhstan – besides mainland Russia. In total, there were 1568 strategic warheads in Ukraine, 1360 in Kazakhstan, and 54 in Belarus.[44] Also, Ukraine had 176 (SS-19 and SS-24) ICBMs, 44 strategic bombers, and 650 tactical nuclear weapons (TNWs). After years of diplomacy and assurances for its territorial and political independence from Russia and NATO, Ukraine gave up its nuclear weapons.

The command and control of the weapons deployed on the Ukrainian territory were in the hands of Russia. Ukraine had only maintained its administrative control while the Russian Rocket Force was in operational control of nuclear weapons on Ukrainian soil. Ukraine desired to develop its own command and control after the USSR's disintegration, but most of the Soviet nuclear command and control infrastructure was in Russia. It had attempted to develop its command and control in 1993 by establishing the Center of Administrative Control over Strategic Nuclear Forces in the Ukrainian Ministry of Defence.[45] After 1992, Ukraine gained access to nuclear warheads, and settled measures to prevent the Russian launch of nuclear weapons and specific conditions for positive control over those weapons.

However, by signing the 1991 Minsk Agreement on Strategic Forces[46] and the 1992 Lisbon Protocol,[47] Ukraine gave charge of all the nuclear armament to Russia. Later, after the 1994 Trilateral Statement[48] and 1994

cil Meets in Eleventh-Hour Effort to Avoid Full-Scale Conflict," United Nations, February 23, 2022, https://press.un.org/en/2022/sc14803.doc.htm.

44. Marco De Andreis and Francesco Calogero, "The Soviet Nuclear Weapon Legacy," SIPRI, 1995, https://www.sipri.org/sites/default/files/files/RR/SIPRIRR10.pdf.

45. Alexander A. Pikayev, "Post-Soviet Russia and Ukraine: Who Can Push The Button?" The Nonproliferation Review, 1994, https://www.nonproliferation.org/wp-content/uploads/npr/pikaye13.pdf.

46. "Factbox: What are the Minsk agreements on the Ukraine conflict?" *Reuters*, February 21, 2022, https://www.reuters.com/world/europe/what-are-minsk-agreements-ukraine-conflict-2022-02-21/

47. "The Lisbon Protocol at a Glance," *Arms Control Association*, December 2020, https://www.armscontrol.org/node/3289.

48. "The US-Russia-Ukraine Trilateral Statement and Annex," *Atomic Archive*, https://www.atomicarchive.com/resources/documents/deterrence/trilateral.html.

Budapest Memorandum on Security Assurances,[49] Ukraine adhered to complete disarmament and signed the Nuclear Non-proliferation Treaty (NPT) and Strategic Arms Reduction Treaty (START).

Factors such as security assurances from the nuclear powers against the threat or use of force against its territory, or political independence, economic assistance, and compensation for fissile material removed from strategic and tactical systems impacted Ukraine's decision. Ukraine could have attained positive operational control over the weapons if it had wanted to. The only way for the US and Russia to disarm Ukraine was to confiscate nuclear warheads and delivery vehicles from its territory. These actions and their results raise the question whether the situation would have been different lest Ukraine had retained its nuclear weapons capability. Nuclear weapons might have deterred the current conflict or even a petty unrest in the region.

These two case studies present a stark difference in the present statuses of the two states. One state that successfully developed nuclear weapons capability is relatively safe from foreign aggression. The other state that gave up the opportunity to maintain a nuclear status is currently facing a war. The above discussion and these two case studies reinforce the belief of other states that nuclear weapons are powerful tools to avoid and deter war.

Conclusion

Since their development and only use in 1945 and rare proliferation by some states, nuclear weapons have been providing stability to the world by ensuring state survival and preventing major conflicts between nuclear-armed rivals. They deter and avert external aggression and incentives for any nuclear-weapon state to start a conflict with another nuclear-weapon state. The interest and faith in their role have not decreased despite the parallel track of creating environment for nuclear disarmament. All nuclear powers continue to invest in their respective nuclear weapons programs to retain and increase these weapons quantitatively and qualitatively. Qualitatively, the role of nuclear weapons in national security strategies is increasing, and the nuclear arsenal is being modernized. Quantitatively, an

49. "Memorandum on Security Assurances in Connection with Ukraine's Accession to the Treaty on the Non-Proliferation of Nuclear Weapons," United Nations, https://treaties.un.org/Pages/showDetails.aspx?objid=0800000280401fbb.

overall increase in the global nuclear arsenal is predicted over the next decade. In addition, the disarmament efforts are not progressing due to the global geopolitical and geostrategic environment in the wake of great power competition.

The development of nuclear weapons has given strength to North Korea to deter a much bigger adversary, the US. On the other hand, the Russia-Ukraine crisis has also brought forth the importance of nuclear weapons for a state's security and survival, especially once a bigger military power is threatening it. The comparison of Ukraine and North Korea, encapsulated in this study, reflects the importance of nuclear capability in the face of external aggression. Nuclear weapons will remain an integral part of a state's deterrence and defense, despite continued pledges for disarmament. Unless comprehensive environment is created for disarmament, which includes dispute resolution, nuclear weapons possessor states are not likely to give them up. The international strategic setup thus requires a robust non-proliferation regime showing an indiscriminatory behavior for all members.