

JULY 2024

House of Cards?

Nuclear Norms in an Era of Strategic Competition

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A Report of the CSIS Project on Nuclear Issues

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About PONI

The Project on Nuclear Issues (PONI) was developed in 2003 to develop the next generation of policy, technical, and operational nuclear professionals by fostering, sustaining, and convening a networked community of emerging experts. PONI identifies and cultivates emerging thought leaders by building relationships, deepening understanding, and sharing perspectives across the full range of nuclear issues and communities. PONI's programs provide inclusive, diverse, and creative opportunities for rising experts to learn about policy, technical, and operational aspects of the nuclear community; develop and present new concepts and ideas; engage in thoughtful and informed debates; and tour and visit sites across the nuclear enterprise.

PONI strives to achieve this mission through several objectives:

- identifying emerging thought leaders and providing them with the opportunity to develop and present new concepts and ideas;
- sponsoring new cutting-edge research;
- encouraging thoughtful and informed debate;
- engaging a broad and diverse community across the country and internationally;
- providing a networked platform for information-sharing and collaboration across the broad nuclear community; and
- cultivating young professionals through opportunities to build relationships, deepen understanding, and share perspectives across the full range of nuclear issues and communities.

PONI sponsors numerous opportunities for young professionals to engage in thoughtful and informed debate on the nuclear community's most pressing challenges. PONI strives to expand its outreach to address all career and academic levels, connect young professionals in collaborative research projects, broaden the topics it covers across the full spectrum of nuclear issues, and ensure robust inclusion of expertise from all critical domains—academic, military, scientific, and technical. PONI's approach to this project includes three core goals:

- 1. Inclusivity:** PONI welcomes all ideas and perspectives across the political, ideological, and policy spectrums.
- 2. Diversity:** PONI actively seeks interdisciplinary perspectives across technical, operational, corporate, government, and academic backgrounds and embraces participation across all demographics.
- 3. Creativity:** PONI promotes collaborative, innovative research and dynamic, engaging programming.

Contents

Introduction	1
Three Nuclear Norms: Nonproliferation, Nonuse, and No Testing	3
The Health and Networking of Nuclear Norms	6
<i>Nonproliferation</i>	8
<i>Nonuse</i>	9
<i>No Testing</i>	11
Avoiding a Reverse Normative Cascade	13
<i>Findings</i>	14
<i>Recommendations</i>	16
About the Authors	19
Endnotes	20

Executive Summary

In recent years, nuclear norms have faced significant challenges, as exemplified by Russian president Vladimir Putin's November 2023 decision to withdraw Russia's ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). This decision is part of a broader trend undermining nuclear institutions, such as the breakdown of bilateral arms control dialogue and the failure to achieve consensus within the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The erosion of these norms poses a critical question for the international community: Can the nuclear order be maintained—or will it collapse under persistent contestation?

This paper analyzes the health of three key nuclear norms: nonproliferation, nonuse, and no testing. The findings indicate that while these norms are broadly supported and critical for stability, they are increasingly contested. The research paints a picture of a network of nuclear norms under stress. This contestation is led by a relatively small cast of characters, but growing friction within nuclear institutions from multiple directions and by a wide set of actors also challenges the existing nuclear order.

Norm development is frequently depicted as a cascade, yet this cascade can also operate in reverse should a norm experience significant weakening. Such a reverse normative cascade has the potential to make the nuclear order collapse like a house of cards, whereby the violation of a single nuclear norm, such as the norm against testing, could have knock-on effects potentially undermining other norms, such as the one against proliferation. The interconnected nature of these norms means that a significant weakening of one could lead to a cascade effect, jeopardizing the others.

Key Findings

- 1. Nuclear norms are interdependent, and a normative cascade can go both ways:** While the norms are often represented as stand-alone pillars, these pillars are arranged like dominoes: if one falls, another could follow. Proliferation, for example, has historically been followed by testing, and it could undermine the credibility of not only the NPT and CTBT but also their associated norms. Similarly, any use of a nuclear weapon could call into question the entire nuclear order and its ability to restrain nuclear use.
- 2. Norm cascades or reverse cascades are exacerbated by regional dynamics:** For example, Russia's suspension of arms control agreements, such as New START, correlates with its invasion of Ukraine. States' decisions to observe norms, therefore, depend not only on the wider international security environment, but particularly on the regional security environment and perceptions of threats from neighbors.
- 3. The norm against nuclear testing is strong, but the weakest of the three:** The norm against nuclear testing faces the most active contestation, highlighted by North Korea's ongoing testing over the past decade and Russia's potential resumption of testing. Another challenge is coming from contestation of the CTBT. One point of contestation is the treaty's delayed entry into force, which remains a distant and unlikely prospect both because of the security environment and because of domestic political polarization, particularly within the United States.
- 4. Treating nuclear possessors as a monolith could undermine nuclear norms:** Many international actors treat all nuclear possessors as norm contesters because of nuclear modernization programs and continued reliance on nuclear weapons for deterrence. Overall, third-party responses have been strongly supportive of upholding all three norms. However, responses to potential nuclear use and nuclear threats have been less strong than the other two norms. The main example of this is the hesitant international response to Russia's threats of nuclear use related to Ukraine.

Policy Recommendations

- 1. For Nuclear Possessors:** Continue to uphold and reinforce nuclear norms through transparency, restraint, and collective efforts such as the P5 process (involving China, France, Russia, the United Kingdom, and the United States) and the Creating an Environment for Nuclear Disarmament (CEND) initiative. Specific activities might include reciprocal visits to test sites, along with incorporating risks of emerging technologies into multilateral dialogues. To strengthen the nonproliferation norm, the United States and United Kingdom can be more explicit about the historical nonproliferation benefits of extended nuclear deterrence. Additionally, states should refrain from explicit nuclear threats or escalatory language, such as threatening "World War III."¹
- 2. For the P3 (France, the United Kingdom, the United States):** Lead efforts in risk reduction and norm reinforcement, engaging with both nuclear and non-nuclear states to

address emerging threats and regional dynamics. These efforts might take place within the context of CEND, the initiative on irreversible nuclear disarmament (IND), or other new risk reduction efforts. This will require continuing to operate within the P5 process, but the P3 can also engage either bilaterally or multilaterally with a wider group of non-nuclear weapon states (NNWS) to understand and strengthen norms at the regional level.

- 3. For Non-Nuclear Possessors and Civil Society:** Play an active role in norm enforcement, particularly in the context of the NPT. One specific area where NNWS and civil society can strengthen nuclear norms is to avoid treating nuclear possessors as a monolith. They should also continue to pressure the P5 to continue with their dialogues and to address the risks of weakening norms in the context of emerging technologies, transparency of doctrine, and risk reduction initiatives. This group should also play an important role in championing the Fissile Material Cutoff Treaty and CTBT. A final point is that civil society can lead the way in public denouncements of norm violations.

The paper is a call not only for nuclear weapon states (NWS) to uphold the nuclear norm network, but also for leadership by key states, such as the United Kingdom and United States, to engage with NNWS to strengthen norms and hold norm violators accountable.

Introduction

On March 13, 2024, Russian president Vladimir Putin added to his list of nuclear threats, stating that Moscow was ready to use nuclear weapons in case of a threat to “the existence of the Russian state, our sovereignty and independence.”² This statement was the latest in a string of challenges to nuclear institutions, including the breakdown of bilateral arms control dialogue and the failure to reach consensus in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), often cited as the cornerstone of the nuclear order. In a statement to the United Nations Security Council (UNSC) in 2024, for example, UK ambassador James Kariuki cited the importance of the NPT in “preventing the erosion of non-proliferation.”³ Nuclear norms are being tested from multiple directions, and how the international community responds to these challenges will determine if the nuclear order can be stabilized through existing institutions or whether it faces an era of uncertainty.

Examining the status of nuclear norms is not a purely academic exercise, although much of the thinking about norms is rooted in scholarship. The health of nuclear norms also has direct policy implications. Policy objectives for the international community, particularly for nuclear weapon states (NWS) with unique nuclear responsibilities, include upholding existing nuclear norms so as to avoid escalation to nuclear use or nuclear proliferation. The nuclear order, to include institutions and norms, is important because it provides stability and predictability on nuclear risks in a time of growing uncertainty. Treaties, norms, and other commonly observed practices inhibit potentially dangerous behaviors such as nuclear proliferation or testing, along with upholding the taboo against nuclear use.⁴ But a worsening security environment and new technologies, among other factors, threaten to undermine nuclear norms.

Nuclear norms are being tested from multiple directions, and how the international community responds to these challenges will determine if the nuclear order can be stabilized through existing institutions or whether it faces an era of uncertainty.

Three norms serve as the foundation of the nuclear order: nonproliferation, nonuse, and no testing. This study uses an analytical framework to assess the health of these three nuclear norms and to identify policy options for strengthening them. The research paints a picture of an increasingly contested *network* of nuclear norms. This contestation is led by a relatively small cast of characters, but growing friction within nuclear institutions from multiple directions and by a wide set of actors also challenges the existing nuclear order. Much of the current contestation is driven by regional and domestic factors—including individuals—rather than by major strategic shifts or great power competition. Norm development is frequently depicted as a cascade, yet this cascade can also operate in reverse should a norm experience significant weakening. Such a reverse normative cascade has the potential to make the nuclear order collapse like a house of cards, whereby the violation of a single nuclear norm, such as the norm against testing, could have knock-on effects potentially undermining other norms, such as the one against proliferation.

This paper proceeds in three sections. First, it provides an overview of the three key nuclear norms. Second, it uses an analytical framework to assess the health of nuclear norms and identify which are strongest as well as which are being contested and by whom on the basis of concordance, third-party responses, compliance, and implementation.⁵ This framework is derived from robust scholarship on norm evolution and health, and it demonstrates the value of bridging the academic and policy communities on pressing nuclear issues. Finally, the paper summarizes the four main findings from the analytical framework and offers a series of policy recommendations for strengthening norms, such as greater transparency, cooperative efforts to reduce nuclear risks, and public denouncement of norm violations. The paper is a call not only for NWS to uphold the nuclear norm network, but also for leadership by key states, such as the United Kingdom and United States, to engage with non-nuclear weapon states (NNWS) to strengthen norms and hold norm violators accountable.

Three Nuclear Norms

Nonproliferation, Nonuse, and No Testing

Michael Krepon, in his 2021 book *Winning and Losing the Nuclear Peace*, emphasized the importance of sustaining the norms against nuclear proliferation, the use of nuclear weapons in warfare, and further nuclear weapons testing.⁶ Krepon argued that arms control efforts should focus on upholding these norms. Like Krepon, this paper does not include norms of disarmament or deterrence in its analysis, given that disarmament and abolition “reflect aspirational standards that have been beyond reach for every generation that has lived uneasily with nuclear danger. . . . The human costs of continued warfare have been great, but not anywhere near as great as in wars fought before the Bomb was invented.”⁷ Similarly, it does not include disarmament as a norm because while disarmament is captured in NPT Article VI and nuclear arsenals have been reduced by approximately 88 percent since the height of the Cold War, progress toward disarmament has stagnated and is not a consistent practice.⁸ Additionally, scholarship by Jean-Baptiste Jeangene Vilmer and Lawrence Freedman has demonstrated that nuclear disarmament does not constitute a norm because it does not have a norm “entrepreneur” among nuclear possessors and may fail to fully emerge.⁹ Nuclear deterrence, conversely, remains a consistent practice among nuclear possessors and states covered by extended nuclear deterrence (such as within NATO), and it is also occasionally cited as consistent with the norm of nonuse.¹⁰ But nuclear deterrence remains widely contested among NNWS and much of civil society, and it has not reached the same widespread acceptance as the nuclear taboo, for example.

At the outset, it is important to recognize the potential limits of focusing on norms as an indicator of the strength of the nuclear order and as a policy framework. Norms are intended to set rules of the road to shape broader behaviors. The hope is that a norm violation would inspire widespread

condemnation and outrage. However, sometimes outrage is not enough to shape states' behavior in the face of unprecedented security threats. Norms are neither valued nor observed symmetrically among states, possessors and non-possessors alike.

The table below summarizes the three nuclear norms and their approximate years of origin.

Table 1: Nuclear Norms

Nuclear Norm	Definition	Beginnings
Nuclear Nonproliferation	Prevent the horizontal spread of nuclear weapons, materials, and technology through principles, agreements, and international efforts	1968
Nuclear Nonuse	Refrain from using nuclear weapons	1945
No Nuclear Testing	Refrain from testing nuclear weapons across various environments, to prevent environmental harm and health hazards	1954

The nuclear nonproliferation norm is defined as a set of principles, agreements, and international efforts aimed at preventing the spread of nuclear weapons, fissionable material, and weapons-applicable nuclear technology and information. Koplow, for example, defines the nonproliferation regime as “the set of treaties, agreements, conventions, formal and informal groupings, rules, and norms that seek to limit the spread of nuclear weapons.”¹¹ Despite four nuclear-armed countries remaining outside of the 1968 NPT, nuclear nonproliferation has been marked by the widespread international recognition that having more states with nuclear weapons would be destabilizing and could increase the risks of nuclear use. The treaty itself, supported by 191 countries, states that “the proliferation of nuclear weapons would seriously enhance the danger of nuclear war.”¹²

The present analysis focuses on the norm against horizontal proliferation: the spread of nuclear weapons and materials between states or other international actors. This paper does not include so-called vertical proliferation (i.e., nuclear modernization) as part of the norm. Established nuclear powers, including the United States, Russia, and China, continue to modernize, and in some cases expand, their arsenals, which challenges the emergence of a norm against vertical proliferation. Despite their commitments to nuclear disarmament, these states justify their proliferation efforts based on security imperatives, technological advancements, and the perceived necessity of maintaining credible deterrence.¹³

The norm against nuclear weapon use is largely based on the recognition of the potentially catastrophic humanitarian consequences of nuclear detonations and the potential for escalation associated with the use of nuclear weapons. It dates back over seven decades, emerging after the United States used atomic weapons on Hiroshima and Nagasaki in 1945. The norm endured the end of the nuclear monopoly with the development of nuclear weapons by the Soviet Union, as well as the intense geopolitical rivalry of the Cold War era, when the threat of nuclear warfare loomed large. However, despite the temptation to employ nuclear weapons, both superpowers exhibited

restraint, recognizing the immense consequences of nuclear conflict and the risk of mutual assured destruction. As Nina Tannenwald highlights, for example, Secretary of Defense Robert McNamara and Secretary of State Dean Rusk opposed the use of nuclear weapons during the Vietnam War because of the fallout risks and unacceptable destruction, reinforcing the taboo against nuclear use.¹⁴ Similarly, the Soviet Union chose to lose the war in Afghanistan rather than seek to achieve its objectives through “winning” with the use of nuclear weapons.¹⁵ Subsequent diplomatic efforts, international treaties, and various arms control agreements—such as the 1973 Agreement on the Prevention of Nuclear War—strengthened the norm.

Lastly, the norm against nuclear testing refers to a shared understanding that states will refrain from conducting explosive nuclear weapons tests in the atmosphere, underwater, in outer space, underground, or anywhere on earth. The first nuclear test was conducted by the United States in July 1945. After that, nuclear testing quickly became a crucial aspect of the Cold War competition between Washington and Moscow. The United States conducted 1,032 tests and the Soviet Union conducted 715, with the Castle Bravo test being the worst radiological disaster in U.S. history due to its contamination of local civilians on the Marshall Islands.¹⁶ The subsequent arms race between the United States and the Soviet Union fueled an extensive period of testing in different domains. However, concerns over the environmental and humanitarian consequences led to international efforts to halt testing, beginning as early as 1954. After a testing moratorium was put in place between the United Kingdom, the United States, and the Soviet Union between 1958 and 1961, as well as limited test ban agreements, a new test ban was proposed in 1990. The norm is now supported by various agreements and initiatives aimed at reducing the risks associated with nuclear testing. Major legal mechanisms to identify concordance with the norm are the 1963 Partial Test Ban Treaty (PTBT), which prohibited atmospheric testing, and its successor, the 1996 Comprehensive Nuclear-Test-Ban Treaty (CTBT), which further restricted nuclear testing. The CTBT has not yet entered into force. Since it was opened for signature, none of the NPT’s NWS have engaged in nuclear testing; however, India and Pakistan tested in 1998, and North Korea continues to test or threaten to test nuclear weapons as part of its nuclear signaling.

It is important to acknowledge at the outset a high degree of dynamism across the three norms, as evident in their evolution, interaction, and roles in shaping international relations. They essentially form a network of reinforcing mechanisms for nuclear stability. The norm against the use of nuclear weapons, for example, emerged amid Cold War rivalries, with both superpowers laying the groundwork for mutual restraint. Recognizing that any conflict between the two would have catastrophic consequences, President Ronald Reagan and General Secretary Mikhail Gorbachev agreed at the Geneva Summit in 1985 that a nuclear war cannot be won and must never be fought.¹⁷ Since the emergence of these norms, their robustness has varied due to fluctuations in levels of enforcement, adherence, and the institutional strength of the United Nations and other international bodies. Despite varying degrees of strength over time, these norms, working in concert, serve as the foundation of the nuclear order, highlighting the dynamic interplay between policy, historical evolution, and contemporary challenges.

The Health of Nuclear Norms

The following section assesses the robustness and health of the three nuclear norms. Informed by case studies in security and humanitarian law, an analytical framework from Nicole Deitelhoff and Lisbeth Zimmermann identifies conditions affecting the strength, resilience, and durability of global norms.¹⁸ While it can seem in the nuclear policy discourse that these nuclear norms are on the verge of disappearing, the framework shows that they tend to be much more robust than many others in international relations.¹⁹

There are four common critical indicators across norms in security studies: concordance, third-party responses, compliance, and implementation. The first two constitute discourse-based metrics of a norm's strength, whereas the third and fourth components are practice-based and entail specific behaviors. The four indicators are equally weighted to evaluate a norm's robustness.

- 1. Concordance** with the norm describes the acceptance of a norm's legitimacy by a state or the general public. It is characterized by belief in norm-enforcing entities, including institutions tasked with monitoring or implementing the norm. Concordance is also measured by the absolute and relative number of ratifications and the standard and quality of opt-out clauses. High concordance, for example, would see universal or near-universal participation in international treaties, with few, if any, opt-out clauses. Low concordance, conversely, would be shown by the absence of international agreements capturing a norm.
- 2. Third-party responses** to norm violations can include discursive and material sanctioning. Strong third-party responses include universal sanctioning to noncompliance. Weak

responses, such as ignoring or directly or indirectly endorsing violations, would rank low in third-party responses.

3. **Compliance** indicates behavior consistent with norms. This is evaluated by how widespread or rare compliance is. All norms encounter a certain amount of noncompliance, often inadvertent, and compliance alone does not explain robustness.
4. **Implementation** of a norm is critical and can help illustrate when norms withstand challenges. This is measured through the inclusion of norms in policy papers and protocols, the creation of institutions, or the adoption of norms into domestic law. Compliance and implementation are practice-based dimensions to measure the robustness of norms over time and across cases.

The application of this framework offers insights into the robustness of international norms. Table 2 provides an overall assessment of the strength of the nuclear norms, evaluating them from moderate, to strong, to very strong. The table includes some nonexhaustive examples. Justification for the metrics of “Very Strong” to “Moderate” is explained below in greater detail.

Table 2: Assessing Nuclear Norms

<i>Nuclear Norm</i>	Discourse-Based Dimensions		Practice-Based Dimensions		
	<i>Concordance</i>	<i>Third-Party Reactions</i>	<i>Compliance</i>	<i>Implementation</i>	<i>Contestation</i>
	VERY STRONG	VERY STRONG	STRONG	VERY STRONG	
Non-proliferation	High acceptance	Violations consistently sanctioned	Widespread	High implementation on several levels (international, regional)	North Korea, Iran
	STRONG	MODERATE	STRONG	MODERATE	
Nonuse	Widespread acceptance	Threats of use not universally sanctioned	Widespread	Moderate implementation on several levels (regional, domestic)	Threats of use by Russia, North Korea
	MODERATE	VERY STRONG	STRONG	MODERATE	
No testing	Moderate acceptance	Violations consistently sanctioned	Widespread but not universal	Moderate to high implementation (international, regional)	North Korea

It is important to note, however, that this framework alone does not inherently capture dynamic factors, such as the mutually reinforcing nature of many of these norms. Nor does it capture the evolution of the norms over time, an important point of analysis given changing strategic

and technological landscapes. Below is a more in-depth analysis, including consideration of dynamism across the norms, to better understand the health of the three nuclear norms and their relationships to each other.

Nonproliferation

The norm against nuclear proliferation has high **concordance** in policies and treaties, making the norm very robust. The NPT is a cornerstone of global cooperation against nuclear proliferation, with near-universal acceptance, from 191 UN members, creating a robust legal framework against nuclear proliferation. In addition to the NPT, UNSC Resolution 1540 further solidified efforts against proliferation by mandating member states to establish legal measures against the spread of weapons of mass destruction. The nuclear nonproliferation regime encompasses various formal agreements, institutions, and informal groupings beyond the NPT and UNSC resolution. These elements—including nuclear-weapon-free zones (NWFZ), institutions such as the International Atomic Energy Agency (IAEA), and other informal efforts (e.g., the Nuclear Suppliers Group, the Zanger Committee, the four Nuclear Security Summits, the Six-Party Talks, and the Creating an Environment for Nuclear Disarmament initiative)—contribute to the strengthening of the norm.

The scope and number of institutions and groupings committed to nuclear nonproliferation signal a widespread **third-party response** to violations. Breaches of the norm prohibiting nuclear proliferation have prompted robust responses from numerous actors, eliciting international condemnation, economic sanctions, and diplomatic isolation. Whether from individual state actors, alliances such as the European Union, or the UNSC, there is a historical precedent of condemning norm violations by would-be proliferators. The UNSC Sanctions Committee on North Korea, for example, was created in 2006 to address North Korea's nuclear testing and proliferation activities.²⁰

With high acceptance rates, **compliance** with the norm against nuclear proliferation is nearly universal. The IAEA, through comprehensive safeguards agreements and the Additional Protocol, plays a crucial role in verifying compliance. For instance, the agency conducted numerous inspections in Iran to ensure adherence to its nuclear obligations.²¹ Regional organizations also ensure adherence to specific treaties, emphasizing the multilevel **implementation** of the norm. For example, the compliance with the obligations of the Treaty of Tlatelolco is ensured by the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, and the African Commission on Nuclear Energy ensures the implementation of the Treaty of Pelindaba. Overall, the norm against nuclear proliferation exhibits high robustness due to its concordance, reactions to violations, and effective implementation mechanisms.

Nonetheless, today the nonproliferation norm faces challenges from various actors. Iran's nuclear program poses a major provocation, and while Iran claims that its activities are intended for peaceful purposes, Western nations and international organizations have raised concerns about the intent and extent of its nuclear endeavors. Similarly, North Korea's withdrawal from the NPT in 2003 and its development of nuclear weapons have been an ongoing challenge to the nonproliferation norm. Efforts to negotiate and redefine norms related to nuclear proliferation on the Korean Peninsula continue amid diplomatic tensions. Additionally, in March 2024, Russia

vetoed the mandate of a UN Panel of Experts tasked with monitoring enforcement of the sanctions regime against North Korea.²² This not only weakens the implementation of the norm but also suggests a weakening in third-party responses to norm violation.

Overall, the norm against nuclear proliferation exhibits high robustness due to its concordance, reactions to violations, and effective implementation mechanisms.

But potential challenges to the nonproliferation norm are also coming from new directions. Given the threat from North Korea's nuclear program, South Korea may contest the norm against nuclear proliferation, although the likelihood of this is hard to measure. However, polling data shows a gap in public and elite opinions on the issue of South Korea developing an independent nuclear program. A majority (71 percent) of the South Korean public supports an independent nuclear deterrent, while only one-third of the elite supports it (34 percent).²³

In the Middle East, Crown Prince Mohammed bin Salman has stated that if Iran did successfully develop a weapon, Saudi Arabia “will have to get one.”²⁴ Of course, Iran's ongoing nuclear program itself challenges the nonproliferation norm. While officially endorsing the NPT, concerns persist about Saudi Arabia's potential interest in developing its nuclear capabilities, posing challenges to existing norms. Saudi Arabia pursuing a nuclear program would hold serious implications for regional stability and the integrity of nonproliferation efforts. Whether or not South Korea, Saudi Arabia, or other states pursue an independent nuclear weapons program will depend not only on regional security dynamics but also on the restraining power of institutions such as the NPT. At present, it is hard to imagine that South Korea, for example, would be the second state to withdraw from the NPT after North Korea. However, if the normative power of the NPT or other nuclear institutions weakens over time, that restraining power may diminish as well.

Nonuse

Generally, there is high **concordance** with the norm of nonuse, yet there are fewer legal mechanisms to enforce this norm compared to nonproliferation. While the NPT—the primary treaty for nonproliferation—does not explicitly prohibit nuclear use, norms regulating potential nuclear use (or nonuse) are directly and indirectly addressed through international humanitarian law.²⁵ However, international humanitarian law refers to the use of force more broadly, rather than nuclear use specifically. The Treaty on the Prohibition of Nuclear Weapons (TPNW) explicitly refers to the prohibition of nuclear use, but the treaty is not universally accepted. Despite some reservations, the ratification of NWFZs contributes to increasing concordance regionally. For example, a basic party obligation in the Treaty on a Nuclear-Weapon-Free Zone in Central Asia is “not to allow in its territory: the production, acquisition, stationing, storage or use, of any nuclear weapon or other nuclear explosive device.”²⁶

Generally, there is high concordance with the norm of nonuse, yet there are fewer legal mechanisms to enforce this norm compared to nonproliferation.

Third-party reactions to the use of nuclear weapons have been strong. Acting and former UN secretary-generals António Guterres and Kofi Annan both called out the U.S. atomic bombings of Japan in 1945 as a moment of unmatched horror for humanity.²⁷ Reactions to the threat of use, however, have been fairly mixed, with condemnation by many Western states, but overall the responses have not been universal.²⁸ Guterres told the UNSC in March 2024 that “nuclear saber-rattling must stop [and] threats to use nuclear weapons in any capacity are unacceptable.”²⁹ Steen Hansen, minister counsellor of the European Union, similarly condemned Russian threats as dangerous and unacceptable.³⁰ But many other international actors have remained largely silent about Russian nuclear threats amid the war in Ukraine.

Third-party actors, including civil society groups and human rights organizations, bolster norm robustness by condemning nuclear use and emphasizing humanitarian and environmental effects. This ranges from the Hibakusha—people affected by the atomic bombings of Japan—to scientific groups such as the International Physicians for the Prevention of Nuclear War.³¹ For example, the International Campaign to Abolish Nuclear Weapons issued a statement in 2022 condemning “nuclear threats [as] unacceptable at any time, by anyone. Putin’s threats increase the risk of escalation to a nuclear conflict.”³² In 2023, Chinese president Xi Jinping emphasized the need for the international community to “jointly oppose the use of, or threats to use, nuclear weapons.”³³ But not all actors were swift to condemn Russia’s nuclear saber-rattling. The first TPNW Meeting of States Parties, for example, failed to call out Russian nuclear threats, despite the treaty explicitly prohibiting the use *and* threat of use of nuclear weapons. Some nations with close economic or security ties to Russia, particularly in Central Asia, were hesitant to openly criticize Moscow.

Compliance with the norm is nearly universal, with few actors showing behavior that would suggest an intent to break the nearly 80-year tradition of nuclear nonuse.³⁴ States have largely been dissuaded from using nuclear weapons in conflicts since the first use of atomic weapons in 1945.³⁵ While nonuse has persisted, there have been nuclear threats. The United States and the Soviet Union issued nuclear threats during the Berlin Crisis (1958–61) and Cuban Missile Crisis (1962), North Korea has threatened South Korea and its allies multiple times over recent decades, and India and Pakistan have made veiled threats against each other in the past. More recently, nuclear threats have been an integral part of Putin’s strategy for deterring Western intervention in the ongoing war in Ukraine. In February 2024, for example, Putin stated that Western nations “must realise that we also have weapons that can hit targets on their territory.”³⁶ The extent to which these threats have the potential to lower the threshold for nuclear use remains unclear, but they should not be discounted.³⁷

Implementation of the norm occurs at various levels, with regional enforcement through NWFZ agreements indicating high implementation—with the caveat that countries in NWFZs cannot use or threaten to use nuclear weapons and none of these states possess nuclear weapons. NWFZs are an example of the interconnectedness of the nuclear norms, with some institutions and actors

encompassing all three nuclear norms. Some states include the norm against nuclear use in their domestic nuclear strategy through declared no-first-use policies, adding a level of implementation. Other domestic efforts such as law of war manuals subject nuclear use to the principles of proportionality and discrimination.³⁸

No Testing

Concordance with the norm against nuclear testing is captured primarily in legal mechanisms such as the PTBT and CTBT. While the CTBT is considered the cornerstone of efforts to halt global nuclear testing, it has not yet entered into force due to reluctance by a key group of states to ratify or sign the treaty. Nevertheless, nuclear possessors, with the exception of North Korea, continue to refrain from nuclear testing. Although a significant number of countries have ratified the treaty, the absence of universal participation from nuclear states could diminish the robustness of concordance with the norm, according to the analytical framework.

Violations of the norm have elicited strong **third-party reactions** in recent years, including international condemnation and sanctions by individual states as well as the European Union and the UNSC. Civil society efforts by affected communities and organizations have also played a significant role in condemning nuclear testing, resulting in legislative measures such as the Radiation Exposure Compensation Act in the United States. Strong reactions are nearly universal and occur at various levels. For example, the UNSC has passed nearly a dozen sanctions on North Korea since 2006 because of the state's nuclear program. This includes sanctions on military and arms trade, along with impacts on the financial assets of key individuals, in response to nuclear testing.³⁹

Despite the norm against nuclear testing taking hold with the end of the Cold War, a handful of states have continued testing to develop their nuclear weapons programs. There have been 10 nuclear tests since the CTBT opened for signature in 1996: two by India (1998), two by Pakistan (1998), and six by North Korea (2006, 2009, 2013, two in 2016, and 2017).⁴⁰ Compliance has been widespread over the past 30 years, although there have been concerns about low-yield testing, particularly by Russia, such as those raised by the U.S. State Department's annual compliance report.⁴¹ Thus, while the nonproliferation norm is supported by an active treaty and the nuclear nonuse norm lacks a universally accepted treaty, the nuclear testing norm is upheld by a treaty that is not yet in force.

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Implementation of the norm involves various verification methods, including monitoring stations and radionuclide laboratories operated by CTBT signatories. The treaty relies on data from

monitoring stations around the world, which is collected and analyzed by the International Data Center. While all signatories have access to this data, only countries that have ratified the treaty are considered full participants. Regional enforcement mechanisms, such as those embedded in NWFZs, signal a high level of implementation in specific regional zones.

Russia and the United States have engaged in extensive discussions regarding the interpretation of the CTBT. Although both countries have signed the treaty, they hold differing views on what constitutes a violation, illustrating applicatory contestation as they negotiate the scope and interpretation of the norm against nuclear testing. A key point of contention is the concept of zero-yield testing. The CTBT bans all nuclear explosions, but some argue that explosions with an immeasurably small yield are not truly nuclear tests and should be permissible. Putin's remarks in October 2023 about Russia's possible readiness to resume nuclear testing reflect this ongoing debate: "I am not ready to tell you right now whether we need or do not need to carry out these tests."⁴² He framed Russia's potential return to testing as contingent on whether the United States tests. Additionally, some officials in the Trump administration suggested that a return to nuclear testing might be an option.⁴³ Most recent, Robert C. O'Brien, former national security adviser to Trump, reiterated this need to "test new nuclear weapons for reliability and safety."⁴⁴

Like others, the norm against nuclear testing is being contested by a small group of nuclear possessors. North Korea continues to defy the norm by testing or threatening to test nuclear weapons and their means of delivery. Despite international condemnation, Pyongyang argues that such tests are vital for its defensive capabilities. A public statement accompanying one of its 2016 tests emphasized North Korea's right to self-defense and its intention to bolster its nuclear force against perceived threats, particularly from the United States.⁴⁵ Additionally, Russia's deratification of the CTBT in 2023 and Putin's suggestion that Russia could return to testing also have the potential to undermine the norm.

Avoiding a Reverse Normative Cascade

The normative framework presents both a positive but also a cautionary tale. Overall, the nuclear norms remain strong and are widely observed, despite contestation by a small group of actors and a worsening security environment. They are buttressed by widespread concordance with treaties and agreements, particularly the NPT and regional initiatives, such as NWFZs. And yet, despite the historical resilience and overall robustness of these norms, they face ongoing challenges and adaptations. The nonuse norm, for example, demonstrates considerable resilience and is widely recognized as “taboo.”⁴⁶ And yet it is being contested by continued Russian and North Korean nuclear threats—some of which do not receive widespread international condemnation.

To clarify, this paper’s intention is not to present an overly optimistic perspective, but rather to offer a word of caution. The network of nuclear norms could either be reinforced as a lasting foundation of nuclear order or it could collapse like a house of cards. The interconnected nature of nuclear norms is both their strength and their vulnerability when faced with concerted and persistent contestation.

The network of nuclear norms could either be reinforced as a lasting foundation of nuclear order or it could collapse like a house of cards. The interconnected nature of nuclear norms is both their strength and their vulnerability when faced with concerted and persistent contestation.

A key question from the analysis is who creates, upholds, and challenges norms. Norm establishment, to include normative cascades, typically requires norm entrepreneurs or key stakeholders that can build domestic and international consensus. Similarly, norm contestation also begins with individuals; the inverse of entrepreneurs are norm contesters. When it comes to nuclear decisionmaking, particularly in authoritarian countries such as North Korea, Iran, Russia, and China, individual leaders play an outsized role. Russia's threats of nuclear use in the war in Ukraine have been seemingly driven by Putin. North Korea's nuclear program is driven by Kim Jong-un and has been personalized to the Kim family. This finding aligns with other scholarship pointing to the importance of individuals in international security. Solingen, among others, has found that

. . . systematic differences in nuclear behavior can be observed between states whose leaders or ruling coalitions advocate integration in the global economy, and those whose leaders reject it. . . . Conversely, leaders and ruling coalitions rejecting internationalization incur fewer such costs and have greater incentives to exploit nuclear weapons as tools in nationalist platforms of political competition and for staying in power.⁴⁷

Based on the normative framework and the present analysis, this report draws four main conclusions about the health of nuclear norms and the strength of the existing nuclear order. It then offers three sets of recommendations for strengthening nuclear norms, grouped by who should execute them: (1) nuclear possessors, including those in the P5 process (China, France, Russia, the United Kingdom, and the United States); (2) the P3 (France, the United Kingdom, and the United States); and (3) nuclear non-possessors, which includes civil society.⁴⁸

Findings

1. Finding 1: Nuclear norms are interdependent, and a normative cascade can go both ways.

While nuclear norms continue to benefit from widespread international support, particularly in comparison to other international norms, all three are being tested concurrently. This contestation reflects states' responses to a dynamic and uncertain geopolitical and technological landscape. While the norms are often represented as stand-alone pillars, these pillars are arranged like dominoes: if one falls, another could follow. Norm development is often portrayed as a cascade, but this cascade could also work in reverse if one norm is significantly weakened.

On the one hand, this interconnectedness could contribute to strengthening norms. Third-party responses and compliance could speak to multiple norms at once. For example, the NWFZs contribute to strengthening all three norms. On the other hand, one norm's breakdown could undermine the others. Proliferation, for example, has historically been followed by testing, and it could undermine the credibility of not only the NPT and CTBT but also their associated norms. Similarly, any use of a nuclear weapon would be a game changer and could call into question the entire nuclear order and its ability to restrain nuclear use.

2. Finding 2: Norm cascades or reverse cascades are exacerbated by regional dynamics.

Norm contestation appears particularly linked to regional issues. For example, Russia's suspension of arms control agreements, such as New START, correlates with its invasion of Ukraine. Similarly, Russia's nuclear saber-rattling, which has the potential to undermine the norm against nuclear use, is tied to its illegal invasion of Ukraine. Early on, Putin blamed the United States and NATO for its overreach and expansion in Europe: "What the United States is doing in Ukraine is at our doorstep. . . . And they should understand that we have nowhere further to retreat to. Under [U.S.] protection, they are arming and urging on extremists from a neighbouring country at Russia."⁴⁹ For the Middle East, Saudi Arabia's threat to pursue nuclear weapons is explicitly tied to regional proliferation and stability, namely whether or not Iran develops nuclear weapons. Similarly, in South Asia, violations are tied to the tensions between India and Pakistan. In response to India's two nuclear tests in 1998, Pakistan announced its own tests only a few days later. States' decisions to observe norms, therefore, depend not only on the wider international security environment, but particularly on the regional security environment and perceptions of threats from neighbors.

3. Finding 3: The norm against nuclear testing is strong, but the weakest of the three.

The analytical framework indicates that the norm against nuclear testing is currently facing the most active contestation from multiple directions. The most recent violation of any of the three norms occurred due to North Korea's 2017 test, not to mention its ongoing threats to test again, which all challenge the norm against testing. In 2022, for example, South Korean president Yoon Suk Yeol indicated that North Korea had completed preparations for a seventh nuclear test.⁵⁰ One positive trend in the norm against testing has been the strong response to North Korea's most recent nuclear tests, particularly by China. This is an important development compared to earlier nuclear tests; however, given Pyongyang and Moscow's growing closeness, a future test may not receive consensus or UNSC condemnation. Senior officials from Russia and North Korea are meeting regularly to enhance collaboration across various domains such as the economy, science and technology, and culture. In September 2023, for example, North Korean leader Kim Jong-un traveled to Russia's Far East to promote military and technological links with Russia.⁵¹ Only a few months later, in June 2024, President Putin made his way to North Korea, likely deepening the relationship.

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Another challenge is coming from contestation of the CTBT. One point of contestation is the treaty's delayed entry into force, which remains a distant and unlikely prospect both because of the security environment and because of domestic political polarization, particularly within the United States. The CTBT is also contested by Russia's deratification. Amid the increasing

tensions in the international order, some nuclear-armed states may propose alternative normative frameworks prioritizing national sovereignty over disarmament efforts.

4. Finding 4: Treating nuclear possessors as a monolith could undermine nuclear norms.

While this analysis points to a small group of norm contesters, many international actors treat all nuclear possessors as norm contesters because of nuclear modernization programs and continued reliance on nuclear weapons for deterrence. Overall, third-party responses have been strongly supportive of upholding all three norms; however, responses to potential nuclear use and nuclear threats have been less strong than the other two norms. The obvious example of this is the muted international response to Russia's threats of nuclear use related to Ukraine. While Western leaders, including NATO, explicitly and publicly called out Russian saber-rattling, for example, in the fall of 2022, others were more subdued in their responses. It is believed that Chinese and Indian leaders privately signaled to Putin to de-escalate tensions and nuclear threats in the fall of 2022, but the lack of public outcry does little to strengthen the norms. China and India can take on a more influential role in messaging to Putin the risk that his nuclear threats incur.

Recommendations

Based on these findings, the paper offers three sets of policy recommendations for nuclear possessors and nonpossessors to strengthen existing norms and their associated institutions.

1. Recommendation Set 1: Nuclear Possessors and the P5 Process

First and foremost, nuclear possessors should continue to observe and uphold the three nuclear norms. This may be more complicated than it appears. For example, a historically successful tool of nonproliferation has been extended nuclear deterrence to allies and partners, which could require strong nuclear deterrence signaling. Francis Gavin points to NATO as an efficient example of this strategy.⁵² Another complication is the fine line between threatening nuclear use—which could undermine the norm against use—and policies of nuclear deterrence which hold at risk what an adversary values to prevent escalation. To reconcile these challenges, nuclear possessors, particularly the United States and United Kingdom, can be more explicit about the historical nonproliferation benefits of extended nuclear deterrence. Additionally, states should refrain from explicit nuclear threats or escalatory language, such as threatening “World War III.”⁵³

In addition to unilateral restraint and policies, nuclear possessors can also work collectively to uphold and strengthen nuclear norms through forums such as the P5 process as well as the Creating an Environment for Nuclear Disarmament (CEND) and Irreversible Nuclear Disarmament (IND) initiatives.⁵⁴ The P5 process is under pressure because of tension in the security environment, but it remains one of the best opportunities for reinforcing norms and reducing risk. Some recent proposals would contribute to strengthening norms against use and testing, such as reciprocal visits to former test sites, a joint statement on a

continued testing moratorium, and transparency of doctrines and risk reduction efforts to avoid escalation to nuclear use.⁵⁵ The CEND initiative continues to hold plenary meetings, including subgroup work on emerging technologies and risk reduction. One potential area of work would be for CEND participants to identify how emerging technologies, such as additive manufacturing, could undermine norms of nonproliferation. Likewise, the IND initiative is an important opportunity to explore the role of norms in making progress toward political, legal, and technical mechanisms to facilitate irreversible nuclear disarmament.

2. Recommendation Set 2: France, the United Kingdom, and the United States (P3)

Nuclear possessors have unique responsibilities. Ideally, the P5 would act in concert in fulfilling those responsibilities by jointly pursuing many of these opportunities to strengthen nuclear norms. In the absence of P5 unity and consensus, however, France, the United Kingdom, and the United States might lead efforts to pursue these actions. Other opportunities include leading in CEND, IND, and new risk reduction efforts, such as inviting other NWS to join a “human-in-the-loop” commitment in nuclear decisionmaking. There are challenges and risks with this approach. The biggest risk is breaking the P5 process. Undermining the P5 process at a time when the NPT is under pressure could be dangerous. If the P5 process fails to yield substantive results in disarmament, arms control, risk reduction, and transparency, this would be met with deep dissatisfaction by many NNWS and continue to exacerbate polarization within the NPT while inhibiting its ability to serve as a foundation for the nuclear order.

Another area of opportunity for the P3 is to engage, either bilaterally or multilaterally, with members of the BRICS countries (Brazil, Russia, India, China, South Africa, Iran, Egypt, Ethiopia, and the United Arab Emirates) and NNWS to work cooperatively to strengthen nuclear norms. This can include engaging with groupings to better understand risks to nuclear norms at the regional level, along with building consensus around norms against the use and threat of use of nuclear weapons.

3. Recommendation Set 3: Non-Nuclear Possessors and Civil Society

States without nuclear weapons also have responsibilities for upholding nuclear norms, and this paper has demonstrated the importance of third-party responses in contributing to the health of nuclear norms—NWFZs, for example, have a cross-cutting effect on strengthening nuclear norms. But one specific area where NNWS and civil society can strengthen nuclear norms is to avoid treating nuclear possessors as a monolith. All NNWS, including in the context of the NPT review cycle, should call out norm-contesting behavior, such as nuclear threats and withdrawal from existing arms control agreements. These statements can be directed at various members of the P5 process, but they should be specific. They should also continue to pressure the P5 to continue with their dialogues and to address the risks of weakening norms in the context of emerging technologies, transparency of doctrine, and risk reduction initiatives.

One area ripe for NNWS and civil society to increase pressure on nuclear possessors and upholding norms is around fissile material. These groups often criticize the Conference on Disarmament (CD) for failing to make progress in recent years, such as progress toward a Fissile Material Cutoff Treaty (FMCT). This approach, however, treats all CD members as the same, whereas lack of progress on an FMCT can be explicitly linked to two specific states: Pakistan and China.⁵⁶ Pakistan continues to ask for a verifiable FMCT that addresses existing stockpiles of fissile material, not just future production, and China emphasizes the need for prioritizing disarmament by NWS, along with issues around verification. These concerns are understandable and grounds for dialogue, but they should not completely derail FMCT efforts.

One area ripe for NNWS and civil society to increase pressure on nuclear possessors and upholding norms is around fissile material.

NNWS can also play an important role in enforcing the CTBT. By ratifying the CTBT, they contribute to its global legitimacy and pressure NWS to comply. They can engage in diplomatic efforts to advocate for the treaty's universal adoption and implementation. Additionally, NNWS can increasingly participate in the CTBT's verification regime, providing data and support to the International Monitoring System, which enhances the treaty's enforcement and helps detect and call out any illicit nuclear tests in these regions.

A Call for Action

Despite the current geopolitical climate, there are still positive developments in the nuclear norm landscape worth noting. No new nuclear states have emerged in two decades, and President John F. Kennedy's fear of dozens of nuclear possessors has not come to fruition.⁵⁷ Nuclear weapons have not been used in conflict since 1945. And while North Korea remains the only country continuing to test nuclear weapons, it has been widely condemned as an international pariah as a result. Overall, nuclear norms are healthy—for now.

All three norms are being actively contested amid a worsening geopolitical landscape. For this reason, policymakers should not be complacent about the health of the nuclear order, thinking that it is safe while underpinned by these norms. Instead, they should consider the interconnectedness of nuclear norms, as emphasized in this paper. With the possibility of a reverse normative cascade on the table, where the weakening of one norm could have ripple effects on others and potentially topple the nuclear landscape as it exists today, the risk is too great for policymakers to do nothing.

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