Heightened Nuclear Risks and the Risk Reduction Agenda

Nuclear risk reduction has emerged as a promising strategy to mitigate the risks posed by nuclear weapons in a security environment marked by increasing nuclear competition and threats. Concrete measures remain difficult to implement, however, given different understandings of risk, the interconnectedness of conventional and strategic risks, and the manipulation of risks as a conflict tool.

By Névine Schepers

Nuclear threats have become a regular occurrence since the start of Russia's full-scale invasion of Ukraine in February 2022. President Vladimir Putin, his close associates, and Russian media frequently mention the possibility of using nuclear weapons, often in response to comments or actions by Ukraine's supporters. Given heightened fears of nuclear use, coupled with intensifying nuclear competition not only between the US and Russia but also the US and China, there is a renewed sense of urgency to ensure nuclear weapons will not be used. Previously, legally-binding and verifiable arms control treaties proved at least partially effective in eliminating or restricting certain categories of nuclear weapon systems. However, few are optimistic about the likelihood of negotiating any new treaties today. The international community has therefore turned to nuclear risk reduction measures as a way to achieve some measurable progress and manage risk.

Navy Chief Petty Officer John E. Kelley (seated), a presidential communicator, and Lt. Col. Charles Cox, senior presidential translator, staff the hotline in 2013. *US Department of Defense*

Nuclear risk reduction can be loosely defined as the mechanisms that contribute to lowering the risk of any use of nuclear weapons, whether intended as part of a state's strategy or in an escalation scenario, or unintended through accidental or unauthorized use. Measures often aim to improve communications, increase transparency, and strengthen the safety and security of nuclear materials among other goals. These can be achieved through less formal means such as non-legally binding agreements, memorandums of understandings, and codes of conduct. Over the last decade, experts and officials have devoted significant attention to risk reduction. In particular, discussions about risk reduction gained some traction within the P5 process – a forum for the five nuclear weapon states under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) – including, in a more limited form, after February 2022. Hotlines, or direct communication links between heads of government to be used in case of high risk of miscommunication or misunderstanding, have featured prominently as an example of a nuclear risk reduction measure with the potential to be developed further.

However, given many different perceptions of risk, the term has come to encompass a wide array of initiatives, including contradictory ones. Unlike treaties, some risk reduction measures can also be unilateral. However, many measures require some cooperation between the largest and most adversarial nuclear powers, notably the US, Russia, and China. This was always a difficult endeavor but it has become even more so in recent years given increasing tensions and competition. While nuclear risk reduction remains a worthwhile ambition both in its own right and in the absence of arms control treaties, the current context makes measures that seemed attainable just a few years prior near impossible to negotiate today. This includes measures such as an agreement to keep a human in the loop in nuclear command, control, and communication operations and a moratorium on direct ascent anti-satellite (ASAT) missile tests not just agreed on by partners but also adversaries. The following analysis looks at the promise of risk reduction as an avenue for progress, its challenges, and how its prospects have evolved as a result of Russia's war in Ukraine.

Examples of Risk Reduction Measures

Cold War Roots, 21st Century Looks

While "nuclear risk reduction" as both a term and strategy has become more prominent in recent years, its origins date back to early bilateral nuclear arms control efforts between the US and the Soviet Union. Pursued in parallel to treaty-based arms control that focused on imposing legally binding and verifiable limits on particular nuclear systems or testing methods, risk reduction measures were more informal in nature. Examples of Cold War-era risk reduction measures include the 1963 Hot Line Agreement, the 1972 Incidents at Sea (INCSEA) agreement, and the 1987 agreement to establish Nuclear Risk Reduction Centers (see graph). Risk reduction efforts complemented arms control negotiations and, at times, even facilitated them. When arms control was more difficult to pursue due to political tensions, risk reduction offered an alternative. A similar situation exists today, given that Russia has refused to disentangle arms control negotiations from the broader security environment.

After the end of the Cold War, nuclear risk reduction efforts broadened in both participation and scope, due to an increasing focus on non-proliferation, nuclear security as well as complete nuclear disarmament. This expansion has been both necessary – moving away from a purely bilateral US-Soviet framework firmly anchored in the logic of deterrence and strategic stability – and complex – adding numerous issues, players, and policies under one umbrella that cannot cover them all equally or systematically. In the last few years, many experts and policymakers have often examined existing or potential risk reduction measures through a framework developed by Wilfred Wan, which focuses on different scenarios of nuclear use. These include risks of doctrinal, escalatory, unauthorized, and accidental use of nuclear weapons. Differentiating between these scenarios has helped to structure the types of measures sought, given the broad range of risks identified.

Some experts and officials make a further distinction between nuclear and strategic risk reduction. The latter focuses less on nuclear weapons as a risk in and of itself, but takes a risk management approach whereby mitigation efforts focus on the risks inherent to a potential conflict involving a nuclear-weapon state. Its proponents also emphasize that a "strategic" view encompasses risks posed by non-nuclear capabilities, such as conventional precision-strike missiles, anti-satellite weapons, or missile defense systems that can have an effect at a strategic level, meaning a state's national source of power. For nuclear weapon states, this would often imply possible nuclear responses. France, in particular, prefers the term strategic. Disagreements on terms and scope also reflect the difficulty of including an ever-larger array of nuclear risks into discussions, given the impact of emerging and disruptive technologies on nuclear deterrence and force postures (see "Emerging and Disruptive Technologies' Impact on Nuclear Risk" in Studie Sicherheitspolitische Trends 2022–2030).

Differing Views of Risk

The growing number of definitions, strategies, and potential measures to mitigate risk highlights the risk reduction approach's key problem: what constitutes risk is in the eye of the beholder. For many non-nuclear weapon states, lowering the operational readiness of nuclear weapons would reduce the risk of misfiring or unnecessary escalation, whereas most nuclear weapon states see this as affecting the retaliatory capability of their deterrent. For some nuclear weapon states, measures to increase transparency and predictability reduce risk while for others they may threaten the credibility of their nuclear forces or the security guarantees they provide, thereby increasing risk. Diverging views regarding a declaration of no-first use of nuclear weapons are often used to illustrate differences in risk perceptions. China strongly emphasizes its no-first use policy and has urged other nuclear weapon states to commit to a similar policy to reduce risk. Yet, for the US and its allies, no-first use would exclude too many scenarios where vital interest are at stake.

Despite conflicting understandings of what nuclear risk reduction entails, the term was widely used in the lead up to the 2020 NPT Review Conference by a variety of states and groupings. While the conference, which eventually took place in August 2022, ended without a consensus document, several proposals gained some traction during the

negotiations including commitments for increased dialogue, restraint, the creation and enhancing of crisis prevention and management tools, and the development of a structured discussion around risk reduction in future conferences. However, many non-nuclear weapon states that are also signatories to the Treaty on the Prohibition of Nuclear Weapons (TPNW) have been skeptical of the use of the term risk reduction and some of the initiatives that fall under its umbrella, especially when the emphasis on risk reduction is done by nuclear weapon states. They fear that the pursuit of risk reduction measures, which mainly aim to manage risk rather than eliminate it, will replace disarmament objectives. Skeptics also find the all-inclusive approach to risk reduction too broad when these include measures that rely on the premise that nuclear deterrence is a valid security strategy. The integration of language stating that risk reduction is not a substitute for progress on disarmament in official statements alleviates these concerns only marginally.

Beyond different perceptions of risk itself, context also matters significantly. A level of risk that may be acceptable in peacetime may become untenable in a conflict. A certain amount of ambiguity is deemed necessary and tolerable by nuclear weapon states when tensions are low, but this calculation may change when tensions increase. Closing or opening a channel of communication does not send the same message in times of peace as it does during a war. Certain forms of signaling – such as missile tests, routine exercises, or regular force deployments – can be interpreted differently as well. Russia's full-scale war in Ukraine, conducted under the specter of nuclear war, has highlighted a number of these context-dependent risk perceptions and the difficulties associated with evaluating them. Regular nuclear threats and other acts of signaling further emphasize the difficulty of pursuing a holistic risk reduction agenda given risk manipulation strategies.

War and Risk Manipulation

Russia's war of aggression, regular nuclear rhetoric, and withdrawal from or suspension of remaining arms control treaties including New START and the Comprehensive Nuclear-Test-Ban Treaty have demonstrated Moscow's willingness to leverage nuclear threats in order to achieve some strategic advantage. Discussions about risk reduction measures beyond those already in place have stalled and Russia's risk manipulation has highlighted the difficulty of pursuing joint normative or behavioral measures and the hypocrisy of some declaratory statements such as the P5 statement of January 2022 affirming that "a nuclear war cannot be won and must not be fought." However, while risk reduction becomes difficult when adversaries do not agree on any common risk, this is not yet the case between the US and Russia. Measures such as crisis communication remain valuable, for instance. Nevertheless, finding areas of common ground that address a much wider spectrum of risk is undeniably tougher given Russia's unwillingness to reciprocate.

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Part of the appeal of risk reduction, though, is that some measures can be unilateral and do not always need to be reciprocated. The US, the UK, and France have an interest in demonstrating "responsible" nuclear behavior in opposition to Russia by continuing to be more transparent, offering openings for dialogue, or promoting restraint. Yet, as elections loom in the US, there will be fewer incentives to promote further non-reciprocal measures given many Republicans' dislike of arms control objectives or anything seen as giving potential advantages to adversaries through transparency or information sharing measures.

Russia's manipulation of risk and use of nuclear threats for clear coercive purposes go well beyond what most other nuclear weapon states consider acceptable. However, most nuclear weapon states and their allies, as well as proponents of the strategic risk reduction framing, accept that nuclear risks can also be created and used for deterrence purposes. Addressing these ambiguities, inherently present in deterrence doctrines upheld by nuclear weapons states and their allies, within the risk reduction framing is increasingly necessary and is part of discussions regarding nuclear responsibilities. However, some TPNW proponents do not seek to differentiate between so-called responsible or irresponsible nuclear behaviors or threats.

The war and the strong deterrence response it has elicited has made the gap between pro-deterrence and pro-disarmament states even wider. While prior to the war, risk reduction efforts may have looked like a promising avenue for inclusive multilateral engagement, cross-regional initiatives bringing in a wide range of positions on nuclear weapons have become more difficult to coordinate. Differences in how to address the war and its nuclear consequences have permeated most discussions, highlighting shortcomings in the all-encompassing risk reduction approach. The expert community has also started to be more critical in some cases, and more nuanced in others, about what risk reduction can achieve.

Ways Ahead

The normative component of risk reduction and its emphasis on transparency and predictability may not align with Russian or Chinese objectives at the moment. Yet, there is still value in maintaining and reinforcing existing norms – particularly no use and no testing norms – and levels of transparency in terms of doctrines and postures for the US and its allies. Unilateral efforts

Switzerland and Nuclear Risk Reduction

Early Swiss efforts in risk reduction date back to 2007 when it tabled a resolution at the UN General Assembly calling for the decrease of the operational readiness of nuclear weapons alongside Chile, Malaysia, New Zealand, Nigeria, and Sweden. In 2019, Switzerland joined the Stockholm Initiative for Nuclear Disarmament, a cross-regional grouping of initially 16 countries that worked to find ways to strengthen the NPT in preparation for the 2020 Review Conference. Nuclear risk reduction featured prominently on the Stockholm Initiative's agenda. Throughout the COVID-19 pandemic, Switzerland worked with the Stockholm Initiative to advance a 'stepping stone' approach to disarmament. Switzerland took the lead in coordinating a nuclear risk reduction package, which gained further support beyond the Stockholm Initiative. Elements of this package were included in the draft final document of the Review Conference, which was approved by all states but Russia. Since the Review Conference, Switzerland has focused on the risk of early integration of AI in nuclear command, control, and communication systems, by organizing discussions at a summit in the Hague in 2023. At the UN Security Council where Switzerland has a non-permanent seat in 2023-2024, it has proposed to establish crisis communication channels.

Further Reading

Wilfred Wan, **"Nuclear Risk Reduction A Framework for Analysis,"** *United Nations Institute for Disarmament Research,* November 2019.

Corentin Brustlein, **"Strategic Risk Reduction Between Nuclear-Weapons Possessors,"** *Proliferation Papers 63,* Institut Français des Relations Internationales, January 2021.

Wilfred Wan, **"Wither Nuclear Risk Reduction?,"** in *The Altered Nuclear Order in the Wake of the Russia-Ukraine War,* (Cambridge, Massachusetts: American Academy of Arts and Sciences, 2023).

Benoît Pelopidas / Kjov Egeland, **"The False Promise of Nuclear Risk Reduction,"** *International Affairs* 100:1 (2024), pp. 345–360.

aimed at improving the safety and resilience of nuclear command, control, and communications systems or early warning systems also contribute to reducing accidental or unauthorized risks. Moreover, while Russia seems unlikely to engage with new risk reduction initiatives, China has indicated some interest in exploring potential measures.

Many of the guardrails around the US-China nuclear relationship still need to be built. Previous nuclear dialogues in the last two decades never succeeded in becoming a fully-fledged official channel. Preferred measures on either side – such as China's proposal to end nuclear sharing practices or the US' calls for increased transparency – are considered a non-starter for the other. Yet there are elements of interest on both sides, particularly linked to accidental or unauthorized risks as well as those posed by emerging technologies such as AI. After a steady increase in tensions over the last several years, diplomatic openings in late 2023 have offered some positive prospects for Washington and Beijing to start a working dialogue on risk reduction measures.

The risk of nuclear escalation will remain high as long as Russia's war in Ukraine continues and may even increase as Russia relies more heavily on its nuclear deterrent. Incentives to avoid such escalation through potential risk reduction measures will continue to be a priority. As the nature of the conflict evolves, so should risk reduction strategies to account for the variety of scenarios and developments within security environments. For instance, given the growing importance of non-nuclear threats to nuclear assets, efforts may need to be expanded to include certain conventional and hybrid capabilities in risk calculations.

For more on perspectives on Euro-Atlantic Security, see CSS core theme page.

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