



EUROPEAN
LEADERSHIP
NETWORK

Protecting the Nuclear Non-Proliferation Treaty in turbulent times

Commentary collection

July 2024

These commentaries have been published as part of the ELN's project [Protecting the Non-Proliferation Treaty](#). The project seeks to preserve the multilateral nuclear non-proliferation regime and prevent further erosion of the nuclear taboo and the Nuclear Non-proliferation Treaty (NPT). Bringing together an intergenerational, pan-regional Network of experts, it works to identify pathways to success in the eleventh review cycle, taking a holistic approach to the NPT and its three pillars.

The online versions of these and other commentaries, which often contain links to additional sources and relevant background information, can be found by scanning the QR code below or following this link: <https://europeanleadershipnetwork.org/publications/commentaries/>.



This project is funded by:



Norwegian Ministry
of Foreign Affairs

Contents

Never let a good crisis go to waste: The impact of great power conflict on the nuclear non-proliferation regime and what to do about it Oliver Meier	4
Preparing for the 2026 Review Conference: Pragmatic steps toward an improved NPT Review Cycle, Michael Biontino	8
Gender as a flashpoint: Risks and resolutions for the NPT review process Sanaa Alvira and Shizuka Kuramitsu	11
Russia’s full-scale invasion of Ukraine continues to threaten the nuclear order’s grand bargain Olamide Samuel	14
10 lessons learned as the International Partnership for Nuclear Disarmament Verification turns 10 Irmgard Niemeyer	17
<hr/>	
The NPT needs a common understanding of “nuclear threats”: Questions and tasks for the 11th NPT Review Cycle Maren Vieluf and Ananya Agustin Malhotra	20
The extreme nature of nuclear deterrence Ward Wilson and Paul Ingram	25
How would humans react to nuclear catastrophe? Adam Thomson and Paul Ingram	28
Deterrence of non-nuclear strategic threats: The case against deterring new technologies Julia Berghofer	30
Time to engage seriously with the TPNW’s security concerns Alexander Kmentt	33
Quieting the nuclear rattle: Responding to Russia’s tactical nuclear weapons exercises Pavel Podvig	36
Why and how the NPT must prepare for an arms control interregnum in the post-New START era Maximilian Hoell	38
<hr/>	
How to bolster nuclear-weapon-free zones Tarja Cronberg	41
Why Iran’s missile strikes pose a real problem for Pakistan Rishi Paul	44
<hr/>	
Unleashing the power of Pillar III of the Non-Proliferation Treaty for sustainable development in Africa Daniel Ajudeonu	47

Never let a good crisis go to waste: The impact of great power conflict on the nuclear non-proliferation regime and what to do about it

Oliver Meier

Compartmentalisation can prevent unnecessary arms races and facilitate non-proliferation and cooperation on peaceful uses. We need an N5 compact that builds on their shared interests to avoid nuclear war.

More than two years after Russia's full-scale invasion of Ukraine, the nuclear non-proliferation regime and other multilateral institutions controlling weapons of mass destruction are in a deep state of crisis. This crisis is different from previous ones because international and domestic trends towards competition and polarisation interact and reinforce each other: it has generally become harder to build coalitions strong enough to make the case for solutions that require some give-and-take. At the same time, these negative developments have triggered counter-movements. States parties could and should seize these opportunities to make the nuclear non-proliferation regime fit for a much tougher future.

Some multilateral arrangements, such as the 1968 Nuclear Non-Proliferation Treaty (NPT) or the 1972 Biological Weapons Convention (BWC), were designed under conditions of bipolarity. Others, such as the 1993 Chemical Weapons Convention (CWC) and the 1996 Comprehensive Nuclear-Test-Ban Treaty, were drafted in wake of the Cold War in the 1990s, under conditions of US-hegemony. As a result, they all carry the N5 signature which in many ways reflects preferences of the Global North.

Making these regimes fit for the future will thus require a willingness, particularly by the N5, to put their overall competition aside for the greater good of preventing nuclear war and limiting the spread of nuclear weapons. It will also require a collective effort by all NPT states parties to minimise the impact of three negative trends affecting multilateralism.

Geopolitics

First, geopolitics and the deepening conflict among the N5/P5 are wreaking havoc on the NPT. The nuclear powers are much less willing to separate their political and economic competition to manage the nuclear order. The causes for this unwillingness to compartmentalise nuclear risk management vary. The United States has radically changed its foreign policy outlook four times over the last 25 years and is struggling to come to terms with the relative decline of its global influence. China is growing out of its role as a developing country and trying muscle its way into global politics, while cherry-picking responsibilities. Russia has turned into a nationalist, aggressive power that is looking backward and inward, rather than constructively forward.

Russia's war against Ukraine is so poisonous for international politics because it affects every level of multilateralism, from routine operations of international organisations, all the way up to the Security Council, as the guardian and ultimate arbiter of compliance with those accords.

Compartmentalisation can prevent unnecessary arms races and facilitate non-proliferation and cooperation on peaceful uses. We need an N5 compact that builds on their shared interests to avoid nuclear war. Such a compact could include an agreement by Russia and the United States to resume a dialogue on a post-New Start arms control framework. This would be essential for success of the 2026 Review Conference; all NPT states parties should urge Russia to return to such talks. The N5 should also reaffirm their readiness to cooperate

in the context of regional and subregional proliferation scenarios, just like they did for a few years in the dismantlement of Syria's chemical weapons. And the nuclear suppliers need to agree to supply proliferation sensitive technologies only to those countries that fulfil the highest safeguards standards. This is not an ambitious agenda. But it would at least establish a floor under great power competition.

Informalisation

Second, and partly as a consequence of conflicts among P5, there is a long-standing trend towards informalisation in multilateralism. This extends to the disarmament and non-proliferation regime. The existing NPT group structure has become largely obsolete. Instead, policy coordination happens increasingly in groups of more or less like-minded states, some with issue-specific agendas, some regional, others cross-regional. This is good news because these groups bundle interests and thus facilitate complex negotiations. But informalisation increases the inclination for forum-shopping and can reduce incentives to make compromises across the three NPT pillars. To reduce these risks, it would be important that groups of like-minded states act as transparently as possible. These groups should also report back regularly to meetings of NPT states parties and, to the degree possible, coordinate work amongst them to avoid duplication - and thus reduce incentives for forum shopping.

Populism

Third, populism has now become entrenched in many countries, including within the N5. Even where populists are not in power, the prospect of their return can paralyse politics. Populists' foreign policy is different because such leaders mainly speak to their core domestic supporters, disregarding coalition-building. Most populists have built their brands around taking down international organisations. Accommodation of populists' agendas is therefore futile and just reinforces their message that multilateralism is weak. NPT states parties therefore should speak out against nationalist and populist arguments and explain why such leaders are acting irresponsibly, regardless of whether they were elected democratically or self-appointed. And states parties must be prepared to take decisions by consensus minus one - or even voting, when nationalists and populists are obstructing progress.

The increasing role of emerging and disruptive technologies is often cited as a fourth independent factor affecting the crisis of multilateralism. To be sure, these technologies do increase nuclear risks (while also harbouring a potential to strengthen multilateralism). But technology does not have agency. Whether EDTs will be able to put to good or bad use depends on political choices of relevant political actors. It is therefore key that those countries that lead the way in the military use – and misuse – of EDT develop frameworks for their responsible behaviour.

Opportunities in crisis

These negative trends threaten to weaken the fabric that holds the NPT together. But they have also triggered counter-developments and opportunities which states parties should seize to make the non-proliferation regime fit for the turbulent times ahead.

Despite the dramatic rollback of nuclear arms control agreements, all ten nuclear risk reduction accords agreed by Russia and France, the United Kingdom, and the United States are still formally intact, providing a platform on which N5 could build future risk reduction efforts.

First, there is a new sense of urgency around nuclear risks. Russia's nuclear threats in its war against Ukraine, the fear around artificial intelligence influencing nuclear decision-making, and the prospect of a three-sided arms race are all drivers of an increased awareness that nuclear deterrence is dangerous and that nuclear weapons pose an existential risk. The success of Annie Jacobsen's book on nuclear war and the Robert Oppenheimer movie are indicators of this awareness, which should be turned into political action. One piece of good news is that, despite the dramatic rollback of nuclear arms control agreements, all ten nuclear risk reduction accords agreed by Russia and France, the United Kingdom, and the United States are still formally intact, providing a platform on which N5 could build future risk reduction efforts. Such discussions could, for instance, include exchanges on national failsafe reviews to improve the safety and security of their nuclear arsenals.

At the 10th Review Conference, a de facto consensus emerged that nuclear risk reduction is neither "substitute nor precondition for nuclear disarmament". This compromise language was not formally adopted because Russia blocked the Final Document. But it provides a baseline for multilateral discussions on ways to reduce the risks of nuclear weapons use. Thus, in the NPT context, the N5 could repeat their January 2022 statement that they "consider the avoidance of war between Nuclear-Weapon States and the reduction of strategic risks as our foremost responsibilities". And states parties could establish an intersessional working group on EDTs to provide continuity and to bring additional stakeholders into the discussion.

The second positive development is that, despite the current severe crisis in non-proliferation and disarmament institutions, the longer-term trend towards multilateralization of international politics appears unbroken, even if it has slowed down. In many issue areas, the insight that global commons problems – of which nuclear non-proliferation is one – can only be effectively and efficiently managed multilaterally remains a driver for institutionalisation at the global level. Given the deadlock in consensus-based fora, we see a trend towards majority-based agreements – and within some regimes, a move away from consensus-based decisions. While these types of agreements have their own downsides, the nuclear weapons states are not in a good position to criticise approaches such as the TPNW, because they are largely responsible for holding up progress in consensus-based fora. At the same time, the shifts of old groupings and alliances does provide a space for new debates. Take, for example, the issue of nuclear sharing, where Russia is now sitting in the glass house itself after its nuclear sharing agreement with Belarus.

For NPT states parties it would thus be important to frame the nuclear non-proliferation regime – and nuclear disarmament – as a necessary and rational response to a global common problem. Nuclear weapons use and nuclear proliferation are global issues that cannot be treated solely, or even primarily, as being complementary to national security. Such a reframing would require the avoidance of old stereotypes, and bringing some clarity about whether states parties see nuclear weapons as an asset or as a legacy. By attending meetings of states parties at the most senior levels, governments can demonstrate that they view nuclear

weapons as an existential risk, just like global warming or the risk of misuse of artificial intelligence or biotechnology, rather than merely as a national security issue.

Third, there is a positive shift towards more accountability in international politics. This new, broader conception of accountability extends beyond existing treaty compliance mechanisms. There is a general expectation of transparency and openness and there are also new opportunities associated by exploiting (international) criminal law to strengthen international norms, including on disarmament. NPT states parties should not miss that boat and follow-up discussions on better accountability and transparency that happened at the 10th NPT Review Conference and in the Working Group on Further Strengthening of the Review Process. This could include dedicating time for regular and structured interrogation of nuclear weapon states' actions on disarmament and non-proliferation. It should also include a willingness to engage with discourses around nuclear justice, including on the human and environmental consequences of nuclear weapons programmes.

The 2026 Review Conference will provide an opportunity for NPT states parties collectively and by consensus to adopt decisions that take the regime into a more successful future. But those states parties and groups of states that are willing to invest political capital into the NPT should begin to build the necessary alliances including with civil society, now.

Those states parties and groups of states that are willing to invest political capital into the NPT should begin to build the necessary alliances including with civil society, now.

Preparing for the 2026 Review Conference: Pragmatic steps toward an improved NPT Review Cycle

Michael Biontino

The failure of the 2015 and 2022 Review Cycle to agree on a final document and the lack of an agreed substantial outcome of the 2023 Session of the Preparatory Committee demonstrates that the Review Cycle of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), as it exists, is in grave danger of becoming altogether dysfunctional in terms of its core task to “consider principles, objectives, and full implementation of the Treaty” (NPT/Conf.1995/32 (Part1), Annex). This is particularly alarming as the NPT is considered the cornerstone of the global nuclear non-proliferation and disarmament regime.

Looking forward to the 2026 Review Conference, and unless urgent mitigating action is taken, the most likely scenario is that both simply conducting business as usual in the NPT framework and the ongoing deterioration of the international security environment might compromise a success well in advance.

As things currently stand, given the ongoing modernisation of nuclear arsenals and expansion by some nuclear weapon states (NWS), the continued or increased salience of nuclear weapons in NWS’ security policies means that real progress in nuclear disarmament seems out of reach. With regards to non-proliferation, the Democratic People’s Republic of Korea’s expanding nuclear arsenal, the ongoing Iranian nuclear programme, the contentious issue of the implementation of the resolution on the establishment of a nuclear-weapon-free zone in the Middle East, as well as possible new proliferation scenarios, will most likely overshadow the current review cycle.

The picture also looks bleak when turning to the international security environment. The re-emergence of great power competition; the concurrent pressure on multilateralism and nuclear arms control, disarmament and non-proliferation architecture; offensive nuclear rhetoric and the behaviour of certain political leaders intended for military coercion, intimidation or blackmail; a perceived lowered threshold for the use of nuclear weapons (e.g. non-strategic nuclear weapons); persistent regional crises and the emergence of new regional crises scenarios, with global political and economic implications will most likely persist until the 2026 Review Conference.

In addition, the NPT must decide how to position itself in the debate on how to deal with the humanitarian consequences of the use of nuclear weapons and consequently, as called for by a considerable number of NPT states parties, the complete ban of nuclear weapons.

Against this backdrop, and given the failure of the 2022 Review Conference to agree on recommendations that would improve the effectiveness, efficiency, transparency, accountability, coordination and continuity of the review process of the Treaty (NPT/CONF.2026/WG.I/CRP.2/Rev.1 and NPT/CONF.2026/PC.I/6), a number of pragmatic steps are called for to help foster a meaningful review cycle and a realistic definition of what a successful 2026 Review Conference can accomplish, beyond a final outcome document adopted by consensus. Given that only Review Conferences are habilitated to take decisions, options should be explored and implemented in the current review cycle.

Recommendations

During the last two review cycles, consensus proved elusive due to fault lines in substance among states parties and the fact that, in specific circumstances, only very few states parties did not align themselves with the more significant majority. This begs the question of whether NPT documents should not be negotiated more flexibly.

Decision making: Chairperson's/President's document

The NPT Rules of Procedure customarily include provisions that allow for voting on decisions after all efforts to achieve consensus have been exhausted. In light of the high sensitivity of such voting, this rule has never been invoked. Given that, at the 2015 and 2022 Review Conferences, consensus on a widely accepted draft final document failed due to disagreement on particular text passages, options should be explored on how to salvage the rest of the text.

This could include a document from the Chairperson/President that clearly delineates the areas of consensus and passages where disagreements persisted. Alternatively, non-consensual issues could be reflected in footnotes, interpretative declarations, or explanations of positions to be included in final documents.

Such a document would be tabled very early in the proceedings following the general debate. The Chairperson/President, or an eminent person with proper delegation of authority, would seek consensus on this document in informal consultations with regional and cross-regional groups (e.g., the Non-Aligned Movement, the Stockholm Initiative, the New Agenda Coalition, and the Non-Proliferation and Disarmament Initiative), as well as specific states parties.

If consensus cannot be reached, the Chairperson/President could seek alignment with this document by the greatest number of states parties possible and thereby summarise the proceedings.

To enhance continuity throughout the review cycle, these Chairperson's documents would build on each other from one preparatory committee to the next, leading to the "President's document" of the Review Conference.

Topical discussions

One of the major shortcomings of the established NPT procedures is the lack of focused, interactive discussions on salient issues that are balanced among the three pillars of the NPT.

In terms of substance, these issues could comprise, as a matter of priority, the implementation of disarmament commitments and transparency, nuclear risk reduction, current non-proliferation concerns, reducing the role of nuclear weapons in security doctrines, negative security assurances, including in the context of nuclear-weapon-free zones, peaceful uses of nuclear science and technology, and nuclear safety and security during armed conflict.

Given the urgency for action concerning these issues and the lack of established intersessional process to address them, informal

This could include a document from the Chairperson/President that clearly delineates the areas of consensus and passages where disagreements persisted.

venues should be sought. In light of the breadth and depth of the task, civil society, research centres, and academia should be allowed to play an active role and engage with the incoming Chairs of the Preparatory Committees, the President of the 2026 Review Conferences, and interested states parties in a series of informal open-ended consultations. This could include thematic and regional conferences (in person or virtual) co-organised by the United Nations Office for Disarmament Affairs (UNODA) and other institutions, such as SIPRI, Nuclear Threat Initiative (NTI), the International Atomic Energy Agency (IAEA), the Monterey Institute, the United Nations Institute for Disarmament Research (UNIDIR) and Wilton Park, among others. Such conferences could lay the groundwork for a meaningful and substantive exchange of views in dedicated meetings at the Preparatory Committees and the Review Conference.

Preparatory activities

In addition, the Chairs of the Preparatory Committees and the President of the Review Conference should continue to enhance regional consultations on salient NPT issues to better prepare for difficult negotiations expected at the Preparatory Committees and the Review Conference. As was successfully practised in the run-up to the 2022 Review Conference, this could include virtual informal consultations with all states parties or in-person informal consultations (in New York, Geneva and Vienna), including with the NPT regional groups, and meetings with different groupings of states parties, such as the New Agenda Coalition, the Non-Proliferation and Disarmament Initiative, the Stockholm Initiative and others.

Friends of the Chairperson/President

To enhance the chances for success, informally assembling a group of “Friends” of the Chairperson or President should be considered. This group should be carefully selected to ensure a balanced representation and enable the Chairperson or President to overcome differences and produce language that could reach consensus for the Chairperson’s or President’s document, or at least alignment with this document by the greatest number of states parties possible.

Although it would be the prerogative of each Chairperson or President to decide on the composition of this group, continuity throughout the review cycle should be prioritised as it would enhance the effectiveness and functionality of the Chairperson or President. This group should include eminent persons from previous review cycles (e.g., Chairpersons /Presidents) to ensure continuity and institutional memory. This has proven beneficial in other fora where there have been representatives of established institutions, such as SIPRI, Nuclear Threat Initiative (NTI), the International Atomic Energy Agency (IAEA), the Monterey Institute, the United Nations Institute for Disarmament Research (UNIDIR) and Wilton Park.

These steps, which do not require changes in the Rules of Procedure and solely require decisive action by each Chairperson or President, should be considered to overcome the current dysfunctional proceedings of the NPT Review Cycle.

Gender as a flashpoint: Risks and resolutions for the NPT review process

Sanaa Alvira and Shizuka Kuramitsu

Discussions on gender will likely continue to be contentious among states parties, with a real possibility that disagreements over language relating to gender may derail the next Review Conference.

Preparations are underway for the second Preparatory Committee for the 2026 Nuclear Non-Proliferation Treaty (NPT) Review Conference, to be held in Geneva in July 2024. This second NPT intersessional meeting will take place against a backdrop of increasingly tense geopolitical tensions between states. These tensions resulted in the last NPT Review Conference, held in August 2022, ending without a final agreement due to Russia's opposition to the wording of the draft document on the Zaporizhzhia nuclear power plant that is currently under Russian military occupation. However, a lesser-discussed aspect of the last Review Conference was the contentious nature of language relating to gender among states parties. These disagreements are adding to the tensions in the new review cycle.

The last NPT review cycle was the first in which gender aspects were discussed in limited ways across all three pillars of the NPT—through a number of side events and working papers with a specific focus on gender, and the inclusion of various gender-related language in the summaries of all three Chairs of the Preparatory Committee. It was also the first time that gender was included in a Review Conference outcome document.

However, these additions reflected the diverse opinions that many delegations had on the matter. While on the one hand, sixty-seven states parties signed a joint statement on gender, diversity, and inclusion; several others were not so welcoming of these references. For example, Egypt stated that the term “all genders” was not acceptable. Iran, supported by Cuba and Sri Lanka, questioned why certain terms like “nuclear weapon sharing” and “nuclear alliance” were “taboo” and suggested that the answer to those questions is similar to why many delegations were hesitant to discuss gender issues.

Interestingly, the issue of gender also seemed to divide members of the Non-Aligned Movement (NAM), the largest political grouping in the NPT review process, which has traditionally been cohesive on other issues, such as nuclear disarmament, nuclear-weapon-free-zones, and peaceful uses of nuclear energy.

The debates reflected a spectrum of opinions — although many delegations supported the broad inclusion of women in NPT proceedings, others disagreed when discussions went beyond the scope of women's participation to include references to “all genders,” “irrespective of their gender,” “all generations,” etc., stating that “the Review Conference was not a suitable forum for discussion of gender, diversity or similar concepts.”

While discussions on gender certainly gained traction in the last review cycle, they remained largely focused on issues of representation, with the exception of a few side events and working papers. The strong resistance of many delegations to the semantics associated with equal representation in NPT proceedings prevented more substantive discussions on the integration of gender perspectives in arms control, non-proliferation and disarmament issues from taking place.

Discussions on gender will likely continue to be contentious among states parties, with a real possibility that disagreements over language relating to gender may derail the next Review Conference, scheduled for 2026. It continues to remain a “hot

As the topic of gender and its related dynamics continue to evolve and gain prominence in the NPT review process, there is an opportunity for some countries to take the initiative in building bridges among the polarised NPT community.

topic” as countries also debate these issues in related international fora. For example, in May 2024, the International Atomic Energy Agency hosted the International Conference on Nuclear Security in Vienna. This conference failed to produce a consensual Ministerial Declaration due to Iran’s objection to gender equality language. Similarly, in May 2023, the Conference on Disarmament hosted a panel on gender and disarmament within the Women, Peace, and Security agenda. In a tweet, the US ambassador affirmed the link between gender and disarmament, while the Russian ambassador questioned the relevance of integrating gender concepts in nuclear disarmament discussions, saying that, “such statements make me frightened.”

It is clear that countries cannot seem to agree even on the foundational aspects of how gender intersects with the broader non-proliferation and disarmament regime. This presents not just a challenge of diplomacy during NPT negotiations but also gives rise to the argument that such discussions may hamper progress on specific issues like nuclear disarmament. For example, Sri Lanka questioned, “whether such references contributed positively to nuclear disarmament or merely provided a useful distraction for some states parties.”

Against this backdrop, there is a growing need for states parties to take stock of the situation and proactively work on securing common ground in language relating to gender, given the strong views many countries hold on the topic. While some states parties may find the topic contentious or largely irrelevant to the main body of discussions in the NPT conferences, discussions on gender are here to stay – both within the NPT and the broader non-proliferation regime context, whether certain delegations like it or not.

As the topic of gender and its related dynamics continue to evolve and gain prominence in the NPT review process, there is an opportunity for some countries to take the initiative in building bridges among the polarised NPT community and identify productive next steps on this issue. Coalitions and groupings of States have historically played an important role at critical junctures in the NPT review cycle. For example, faced with challenges stemming from the lack of a consensus outcome document in 2015 and the prevailing divisions between the disarmament and non-proliferation community, the Swedish government, with ministers from sixteen nations, launched a disarmament “Stockholm Initiative” in June 2019. The aim of this initiative was to “reduce polarisation between countries and take concrete steps towards the common ultimate goal of a world free of nuclear weapons.” Similarly, the New Agenda Coalition, formally launched in June 1998, was the result of consultations among several non-nuclear weapon states (NNWS) on “what ‘middle powers’ could do to more effectively promote nuclear disarmament in light of the complacency of the nuclear weapon states.”

At the current juncture, the time is ripe for like-minded States to come together and take the lead not only in exploring and advancing gender issues in all its dimensions but also in fostering dialogue, promoting understanding and seeking common ground on language relating to gender. While several working papers on gender have been submitted, there is value in having a formal grouping of States to address concerns that other States may have on this issue and hold consultations, alongside their work

in advancing gender mainstreaming efforts in the NPT review cycle. It will also allow for gender as a topic to be more formally institutionalised in the NPT review process, with work being carried out in a structured and sustained way across review cycles.

Additionally, the Chair of the next Preparatory Committee (and all future Chairs) should consider holding consultations with states parties to navigate the diverse opinions and contentious nature surrounding gender issues within the NPT review process. This approach will not only promote inclusivity and consideration of opinions but also enhance the prospects for meaningful progress towards gender mainstreaming within the NPT review cycle.

A few years ago, no one would have imagined that gender would be so highly disputed within the NPT context. Today, however, the issue is firmly on the agenda and will continue to remain so. The sooner this is recognised and proactively worked with, the fewer stumbling blocks will need to be overcome in protecting consensus-based NPT review processes from discord, division, and potential deadlock.

Gender is here to stay. It is time for NPT states parties to work with it.

Russia's full-scale invasion of Ukraine continues to threaten the nuclear order's grand bargain

Olamide Samuel

Eroding the grand bargain

For two years, Russia has persisted with its reckless and unjustified invasion of Ukraine. Although the conflict is still unfolding, it has lasted long enough that we draw some preliminary lessons for its implications for the Nuclear Non-Proliferation Treaty (NPT) and the nuclear order erected around this cornerstone treaty.

The NPT's grand bargain is a delicate balance of obligations undertaken by nuclear weapons states (NWS) and non-nuclear weapons states (NNWS) to ensure the non-proliferation of nuclear weapons and the spread of nuclear technologies for peaceful purposes, even as all states parties are obliged to strive towards the elimination of nuclear weapons as per Article VI of the treaty.

Many NNWS, frustrated by the glacial pace of progress towards disarmament, rightfully demand that NWS do more to fulfil their end of the bargain. As a result, reducing the salience of nuclear weapons has become an essential element of this fragile bargain. Russia's full-scale invasion of Ukraine in 2022 has increased the salience of nuclear weapons in ways that threaten to jeopardise the NPT's grand bargain.

Prior to the invasion, the five NWS (The United States, Russia, China, France and the United Kingdom) have sought to downplay their reliance on nuclear weapons and the numerous ramifications of their continued possession of these weapons. To downplay the risks of intentional nuclear weapons use, NWS insist that their nuclear arsenals serve 'purely defensive' purposes. To downplay risks of inadvertent, unauthorised or accidental nuclear weapons use, NWS place emphasis on their attempts to manage the identified pathways to potential nuclear use. Finally, to downplay ramifications, NWS disturbingly appear to distance themselves from considerations of the humanitarian and environmental impacts of nuclear weapons possession, testing, and use.

When these avoidance strategies fail to alleviate NNWS anxieties about these weapons, NWS occasionally accept additional undertakings to 'further diminish the role of nuclear weapons' in their doctrines and policies, as they did in the NPT RevCon's outcome document of 2010. In all, these NWS strategies are meant to partially alleviate the security anxieties of many NNWS who view the very existence of these weapons as threatening to international security. These NWS strategies are also intended to paint nuclear weapons as burdensome relics of a bygone era, thereby discouraging other NNWS from perceiving nuclear weapons as desirable and valuable and alleviating the security anxieties of those NNWS allies that might wish to acquire nuclear weapons.

In the meantime, the many NNWS that see nuclear weapons as threatening to international security demand negative security assurances from NWS. This is to ensure that NWS limit the use conditions of nuclear weapons by pledging not to use or threaten to use nuclear weapons against states that don't possess nuclear weapons. NWS have been partially forthcoming in this regard, providing conditional unilateral pledges, and some NWS conditionally recognise treaty-based security assurances embedded in various Nuclear Weapons Free Zones (NWFZs). Other NNWS that see nuclear weapons as desirable, useful or necessary

have entered into security alliances with NWS. These alliances are underscored by extended deterrence commitments, nuclear sharing arrangements, or security assistance pacts.

Increasing proliferation pressures

Russia's full-scale invasion of Ukraine spotlights the uncomfortable reality that nuclear deterrence (however defensive in nature) remains reliant on a continuum of implicit and explicit nuclear threats. President Vladimir Putin's issuing of overt nuclear threats to shield his expansionist agenda in Ukraine sparked serious consideration about whether some NWS could begin to see a coercive role for nuclear weapons. This pushed many NPT states to specifically condemn overt nuclear threats in the NPT's 2022 RevCon, and inspired the June 2022 condemnation of nuclear threats by states parties to the Treaty on the Prohibition of Nuclear Weapons (TPNW). By the TPNW's second meeting of states parties in December 2023, states parties had gone further, condemning any and all nuclear threats, and the conference's declaration called for nuclear deterrence to be delegitimised. Putin's nuclear sabre rattling also demonstrated that the nuclear risk reduction measures NWS routinely point to (such as de-targeting or maintaining crisis communication channels) as evidence of their Article VI adherence remain insufficient to manage intentional escalation and risk-taking by a NWS.

Most crucially, not only did the Russian invasion violate the negative security assurances pledged to most NPT NNWS in the United Nations Security Council Resolution 984(1995), it specifically violated the security assurances made to Ukraine in the Budapest Memorandum. Assurances in the Budapest Memorandum were designed to encourage Ukraine to relinquish possession of nuclear weapons in its territory and its accession to the NPT as a NNWS in 1994.

Russia's invasion has upset the fragile balance of obligations in the NPT's bargain by dramatically increasing the perceived salience of nuclear weapons and reigniting latent motivations for horizontal proliferation as a consequence. As US Secretary of State Antony Blinken remarked, Russia's invasion sent the "worst possible message" about the value of nuclear weapons. Some NNWS, unnerved by Russia's actions, expressed a resurgent interest in increasing their reliance on nuclear weapons. These included President Yoon Suk-yeol of South Korea, who initially called for South Korean nuclear weapons, and Former Prime Minister Shinzo Abe of Japan, and Prime Minister Mateusz Morawiecki of Poland, who called for nuclear sharing arrangements.

One can argue that Russia's invasion goes against the spirit of Article I of the NPT, which calls on NWS to not directly or indirectly encourage or induce any NNWS to otherwise acquire nuclear weapons or control over such weapons or explosive devices. If a majority of states parties follow the logic espoused by NWS that nuclear weapons "serve defensive purposes, deter aggression, and prevent war", they can reasonably argue that they are being induced to seek such defensive capabilities, given the increase in extraordinary events which could jeopardise their supreme interests.

Russia's invasion has upset the fragile balance of obligations in the NPT's bargain by dramatically increasing the perceived salience of nuclear weapons and reigniting latent motivations for horizontal proliferation as a consequence.

Fortunately, the Russian invasion has not yet become the 'proliferation trigger' many had anticipated at the start of the conflict. However, holstering the proliferation trigger has been largely attributed to the US's doubling down on reassuring its allies of the reliability of its security commitments. But, US reassurance is only a temporary solution, especially as anxieties rise concerning the possible return of an 'America first' policy. Equally important is that an overwhelming majority of NPT states parties choose to continue forswearing nuclear weapons, and view nuclear disarmament as the ultimate security guarantee.

Nonetheless, we should not confuse the US's ability to lower proliferation pressures by revalidating its existing alliance commitments as actions intended to reduce the perceived salience of nuclear weapons. In fact, the US's attempts to lower proliferation and prevent others from acquiring nuclear weapons by reassuring its allies actually increase the salience of nuclear weapons, as these alliance commitments are reinforced by threats of nuclear retaliation. Some allies even demand that the credibility of extended deterrence be beefed up by additional nuclear weapons such as Sea-Launched Cruise Missiles (SLCMs). In contrast there has been no comparable reaffirmation of existing negative security assurances by any of the nuclear weapons states, even as NNWS continue to demand such reaffirmation.

In an era where security guarantees such as the Budapest memorandum appear to be not worth the paper they are written on, NWS choosing instead to reinforce their extended deterrence commitments inadvertently devalues the wider framework of security assurances granted to NNWS outside of nuclear 'umbrellas'. This framework of security assurances remains an important element of the delicate balance of commitments and security anxieties inherent in the NPT's bargain. Following Russia's full-scale invasion of Ukraine, NWS revalidation and expansion of security assurances have taken on increased importance. It is incumbent on NWS to reaffirm their commitments to negative security assurances and demonstrate a willingness to reinforce them, just as some have reaffirmed their commitments to nuclear-backed security alliances.

10 lessons learned as the International Partnership for Nuclear Disarmament Verification turns 10

Irmgard Niemeyer

The International Partnership for Nuclear Disarmament Verification (IPNDV) – a partnership of 30 countries plus the European Union, working to identify and develop practical solutions to the technical and procedural challenges associated with effectively verifying nuclear disarmament – is celebrating its tenth anniversary in Geneva this week. This milestone comes with some notable outcomes and achievements, which were highlighted in a dedicated IPNDV report. Looking back on past IPNDV activities and looking ahead to its future ones, here are ten findings or lessons learned over the years:

Continuous dialogue on nuclear disarmament verification is key: When the IPNDV was launched in December 2014 by the US Department of State and the Nuclear Threat Initiative (NTI), the geopolitical world looked very different from today. Given the increasing geopolitical challenges in recent years, with clear impact on the international non-proliferation regime and nuclear disarmament discussions, it is important that this Partnership continues its efforts to identify and develop practical solutions to the technical and procedural challenges of effective nuclear disarmament verification.

All States can contribute to aspects of nuclear disarmament verification: No other initiative has gathered more technical experts and government representatives from both Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS) to jointly address the process and technical challenges of nuclear disarmament verification. The Partnership comprises 30 countries from all continents, plus the European Union. Efforts to include more countries with and without nuclear weapons are ongoing.

Multilateral nuclear disarmament verification is possible: Already at the end of Phase I (2015-2017), the Partnership affirmed as a key judgement that multilaterally monitored nuclear warhead dismantlement should be possible while successfully managing safety, security, non-proliferation, and classification concerns. This key judgement was reinforced at the end of Phase II (2018-2019) and again during Phase III (2020-2025), noting that “the Partnership’s results should provide a path forward to multilaterally verified nuclear disarmament”.

Work on conceptual aspects of nuclear disarmament verification can guide the development of robust verification regimes in future negotiations of nuclear disarmament agreements: Since Phase I, IPNDV has focused on “creating a conceptual roadmap” and, until now, developed a comprehensive framework for nuclear disarmament verification, including overarching verification goals, verification principles, verification objectives, and scenario-specific concepts and models.

Developing and testing monitoring and inspection processes, procedures, techniques, and technologies (PPTT) can provide a toolkit of options for future nuclear disarmament verification: Over the past ten years, IPNDV has developed a comprehensive verification toolkit that offers options for declarations and notifications, on-site inspections (including managed access provisions), and verification technologies (including information barriers). Since Phase II, by moving “from paper to practice”, several exercises and technology demonstrations have tested and assessed different PPTT, including the Franko-German Nuclear

As Article 6 of the NPT obliges all states parties to endeavour to achieve general and complete nuclear disarmament, any advancements in the effective verification of nuclear disarmament, alongside political will, can lead to a world without nuclear weapons.

Disarmament Verification (NuDiVe) exercises in 2019 and 2022 at Forschungszentrum Jülich, Germany, and the measurement campaigns at the Belgian Nuclear Research Center, BeCamp in 2019 and BeCamp2 in 2023. In Phase III, aimed at “addressing complexities and building confidence”, the toolkit has been applied in two different scenarios. Based on the hypothetical Nuclear Weapon State of Ipinodvia, its disarmament obligations under the limitation of its nuclear arsenal at 500 nuclear warheads and the reductions of its nuclear arsenal from 500 to zero nuclear warheads have been addressed. In addition, the Partnership has increased its efforts in strategic considerations of nuclear disarmament verification, including a systems approach.

Nuclear disarmament verification is a confidence-building process: IPNDV has identified the different practical, technical and legal factors affecting the level of confidence in nuclear disarmament verification. While absolute verification confidence cannot be achieved in this context, the Partnership concluded that verification confidence should be considered as the cumulative result of the different monitoring and inspection activities taking place over an extended period of time.

Capacity building is essential for developing and implementing nuclear disarmament verification: The Partnership has significantly contributed to capacity building in nuclear disarmament verification by engaging a diverse group of countries and experts in working groups, exercises and technology demonstrations. In addition, IPNDV’s activities have also informed other efforts in providing solutions for nuclear disarmament verification, such as the Menzingen Verification Experiment in 2023 and the discussions of the “Group of Governmental Experts to further consider nuclear disarmament verification issues” (GGE-NDV) (2021-2023), established by the United Nations General Assembly (UN GA). Capacity building also takes place through the IPNDV website, which provides access to numerous papers and reports on a wide range of aspects of nuclear disarmament verification.

More conceptual and technical work needs to be done: The Partnership has outlined an agenda for continuing its work in refining verification concepts, addressing in more detail, inter alia, the verification of absence, the verification of disposition, and the systems approach. The Partnership also proposes to continue the assessment of technologies and to pay more attention to verification options without radiation measurements and information barriers. Exercises and technical demonstrations will also remain valuable for testing and evaluating both concepts and technologies.

More outreach in nuclear disarmament verification is important: While IPNDV has reinforced outreach activities to other nuclear disarmament verification stakeholders after the COVID-19 pandemic, these efforts could be further intensified, including engaging with States and NGOs in the NPT review process. While UNGA might consider follow-up discussions after the successful conclusion of the last GGE-NDV, IPNDV could continue to offer assistance and expertise to any efforts on nuclear disarmament verification within the UN framework.

Progress in nuclear disarmament verification contributes to the strengthening of the Treaty on the Non-Proliferation of Nuclear

Weapons (NPT): As Article 6 of the NPT obliges all states parties to endeavour to achieve general and complete nuclear disarmament, any advancements in the effective verification of nuclear disarmament, alongside political will, can lead to a world without nuclear weapons.

Nuclear disarmament is a challenge that will remain on our agenda for a long time to come, as will nuclear disarmament verification. Therefore, related scientific-technical developments, knowledge management, and capacity building for countries that want to participate more actively in this field and the next generation of experts must continue. Together with other initiatives, IPNDV has laid the foundation for future work on nuclear disarmament verification.

The NPT needs a common understanding of “nuclear threats”: Questions and tasks for the 11th NPT Review Cycle

*Maren Vieluf and
Ananya Agustin
Malhotra*

1 This is the case as far as the authors can tell from lexical analysis of 5000 publicly available NPT documents using MaxQDA. Before the 2022 Review Conference, states did not identify concrete nuclear threats and did not reference them as being unjustified. States did state the shared goal “of a world without nuclear threats” and condemned risks associated with rogue states, miscalculations and misinterpretations as well as terrorists, but did not call out a particular state or actor for nuclear threats.

States parties to the Treaty on the Nonproliferation of Nuclear Weapons (NPT) met in Vienna last summer for the Preparatory Committee (PrepCom) to the 2026 NPT Review Conference (RevCon). In advance, member states were invited to a Working Group on strengthening the review process. These first three weeks of meetings in this 11th NPT review cycle ended with the working group not adopting joint recommendations and some state parties (namely Iran, Russia, and China) blocking the PrepCom chair’s efforts to issue the official summary of the meeting as a working paper. In the absence of consensus documents, the pressure on this review cycle to produce tangible results is as urgent as ever. Preventing nuclear use and threat of use, which is in all NPT states’ interests, should be the first priority of the 11th NPT Review Cycle.

As a key issue, NPT states should discuss whether it is possible to objectively distinguish between varieties of ‘nuclear threats’, including whether a legitimate distinction between ‘offensive’ and ‘defensive’ nuclear threats exists. Such an effort could help bridge the gap between states condemning any and all nuclear threats under any circumstances and those states that stand firmly behind ‘defensive’ nuclear threats. At the 2022 RevCon, NPT member states, for the first time in the treaty’s history, condemned specific nuclear threats made by an NPT member state.¹ Yet the conference failed to adopt language and develop a common understanding of “nuclear threats” more broadly. Many states, at both the RevCon and the PrepCom, echoed the Treaty on the Prohibition of Nuclear Weapons (TPNW) meeting of states parties’ June 2022 condemnation of “any and all nuclear threats, whether they be explicit or implicit and irrespective of the circumstances.” At PrepCom, some states, including Norway, Japan, and Austria, welcomed the G20 Bali Statement that “[t]he use or threat of use of nuclear weapons is inadmissible”. However, for the most part, discussions focussed on the implicit and explicit threats of nuclear weapons use by Russia in the context of its war of aggression against Ukraine. At the 2023 PrepCom, France, joined by 73 other states, also expressed concern about DPRK’s “continued irresponsible and destabili[s]ing nuclear rhetoric in which it declares its pursuit for tactical nuclear weapons and claims it might use its nuclear weapons pre-emptively” – indicating a rhetorical shift on how France perceives nuclear threats, widening the focus of discussions.

Despite the increased attention on nuclear risks, disagreement persists amongst state parties over what should and should not be considered a nuclear threat. As practices of nuclear sharing came under question, Nuclear Weapon States (NWS) and their allies condemned only certain nuclear threats and argued that some nuclear threats are ‘acceptable’.

NNWS’ critique of the practice of nuclear deterrence has seldom been more strident in the NPT context than at the 2023 PrepCom, and the responses from some NWS have equally reached unusual fever pitches, with states on both sides of the debate implying that the taboo against nuclear use does not exist or is not credible.

The NPT may be more at risk than ever of being ruptured by two incompatible worldviews, including two rival conceptions of ‘nuclear threats’: NWS and allies view implicit nuclear threats as part of nuclear deterrence as legitimate, while many NNWS condemn even the threats to use nuclear weapons inherent to the practice of nuclear deterrence.

The NPT may be more at risk than ever of being ruptured by two incompatible worldviews, including two rival conceptions of 'nuclear threats'.

At the Treaty on the Prohibition of Nuclear Weapons (TPNW)'s Meetings of States Parties, for example, TPNW states parties condemned "any and all nuclear threats, whether they be explicit or implicit and irrespective of the circumstances." Taking a strong stand against any possible "responsible" nuclear threats at the Second Meeting of States Parties in December 2023, TPNW states parties labelled nuclear deterrence itself "the threat of inflicting mass destruction", which "runs counter to the legitimate security interests of humanity as a whole." In no uncertain terms, they declared that even implicit nuclear threats constitute a "dangerous, misguided and unacceptable approach to security. Nuclear threats should not be tolerated." While welcoming the G20 statement on the inadmissibility of nuclear threats, they firmly stated that such statements must be backed up by meaningful action.

To reiterate the taboo against nuclear use and threat, NPT member states should endeavour to find a common understanding of a 'nuclear threat' amongst all NPT member states. This could build on the ICJ's existing definition per its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons – "a signalled intention to use force if certain events occur" – and offer a consensus on whether it is possible to objectively distinguish between varieties of 'nuclear threats.'

Calling out nuclear threats

At the 2023 PrepCom, several states, led by Austria and the New Agenda Coalition condemned all nuclear threats, including implicit threats inherent to the practice of nuclear deterrence. Emphasising that the humanitarian consequences and existential risks render both the use and threat of use of nuclear weapons incompatible with international humanitarian law, these states argued for a paradigm shift away from deterrence and towards nuclear disarmament. They held that indefinite possession of nuclear weapons is indefensible, and the only way to eliminate risks associated with nuclear weapons is through the total elimination of nuclear weapons.

For Austria, nuclear deterrence "relies on the credible threat of the actual use of nuclear weapons." So long as some states rely on nuclear deterrence, argued Ambassador Alexander Kmentt, "there cannot be a real or credible taboo against the use of nuclear weapons, because nuclear deterrence is [...] based on concrete plans and the intention of using these weapons of mass destruction and inflicting unthinkable suffering with potentially catastrophic global consequences."

These NNWS warned that so long as some states continue to possess nuclear weapons and justify the value of nuclear deterrence or the need for extended nuclear security guarantees, citing security reasons for doing so, others may aspire to acquire them. In turn, more states will seek to rely on nuclear deterrence in their respective security policies, counteracting nuclear non-proliferation efforts. But these states' views are juxtaposed by those of the NWS and their allies, who justify certain nuclear threats made in the context of deterrence as permissible.

Justifications of (certain) nuclear threats

As we argued in a recent ELN policy brief on the inadmissibility of nuclear threats, there is an intimate relationship between the practice of nuclear deterrence and the condemnation of (certain) nuclear threats. NWS and their allies continue to act as custodians of the nuclear status quo, stating that the security environment does not (yet) allow for nuclear disarmament and categorising their nuclear weapons policies and doctrines as responsible and defensive, and therefore acceptable.

The NWS continuously refer to their engagement concerning risk reduction, transparency, and, to varying degrees, the Fissile Material Cut-Off Treaty (FMCT) and the Comprehensive Nuclear-Test-Ban Treaty (CTBT). At the 2023 PrepCom, the United States also expressed commitment to identify “political and technical challenges to nuclear disarmament and work to overcome them” without specifying any such efforts. Each of the P5 states denounced what they saw as irresponsible or reckless behaviour and rhetoric by their geopolitical rivals while emphasising the solely defensive nature of their respective nuclear weapons policies. For example, China criticised the United States’ new agreements with the Republic of Korea and the AUKUS deal as “a typical act of double standards” which will “open the Pandora’s box of nuclear proliferation”, while the United States denounced Russia’s war against Ukraine and “irresponsible nuclear rhetoric” as a bludgeon to the “system of nuclear restraint” upon which the NPT rests.

China and the U.S. can agree on one thing: their own nuclear posture is defensive and responsible, but their rival’s nuclear postures are offensive and coercive in nature. China stated that while its nuclear weapons arsenal solely serves the purpose of “deterring nuclear war”, others use them to “intimidate”, “bully”, and “seek [...] hegemony.” China also proposed that the NWS should work to “conclude a treaty on the mutual no-first-use of nuclear weapons, and not target their nuclear weapons at any country.” Such a treaty, however, is unlikely to gain traction in the other P5. The US, for example, cites allies’ concerns that a policy would undermine the effect of deterrence.

In a promising development, some NWS reaffirmed existing negative security assurances against non-nuclear weapon states. The United Kingdom, China, and Russia indicated their willingness to sign additional existing protocols, particularly the Treaty on the Southeast Asian Nuclear Weapon-Free Zone, which none of the NWS have signed to date. All NWS should build on this progress by clarifying what they have committed to when they promise not to use – or threaten to use – nuclear weapons against NNWS.

Yet, at other times, NWS appeared to backslide from commitments against making nuclear threats. France and the United Kingdom contested a line in the Chair’s Draft Factual Summary, which characterised the January 3, 2022 statement by the P5 that a “nuclear war cannot be won and must never be fought” as ‘affirming the norm against the use of nuclear weapons.’ They argued that the joint statement was never meant to indicate that there is a norm against the use of nuclear weapons, implying that no such norm exists. Poland, a U.S. ally, responded to critiques of nuclear deterrence by arguing that nuclear deterrence was essential

to uphold states' security, which ought not to be diminished in the pursuit of the goals of the NPT, including its third pillar of disarmament—a clear contradiction, as perpetual nuclear deterrence is ultimately incompatible with NPT states' obligations to “pursue negotiations in good faith on effective measures relating...to nuclear disarmament.” Russia, which has made the most explicit nuclear threats since its illegal invasion of Ukraine, for its part criticised U.S. nuclear weapons stationed in Europe, stating that this retention “incit[es] compensatory countermeasures.”

Thus, all nuclear weapons states continue to justify nuclear deterrence and implicit nuclear threats, citing the necessity to uphold national security and alliance commitments. But in the long term, failing to reduce the salience of nuclear weapons in security doctrines over time will further entrench the divide between NWS and NNWS and weaken the NPT regime.

Considerations for the 2026 NPT Review Cycle

Finding common ground on what the NPT considers (un-) acceptable nuclear threats will not be easy. Yet, as a first step, to reinforce the nuclear taboo and to address the growing divide between NWS and NNWS, member states should confront whether a perceived need to define and condemn nuclear threats is an urgent task for this review cycle. This dialogue, however, should include NNWS, as the working paper by the New Agenda Coalition highlighted: “[a]ttempts to normalise the threat of use of nuclear weapons, nuclear rhetoric or efforts designed to make nuclear weapons palatable must be challenged or they will continue to damage the Non-Proliferation Treaty regime.” The repetition of the classification of use and threat of use as “inadmissible” with the September 2023 G20 New Delhi Leaders' Declaration should be seen as an opening to further discussions.

States could unequivocally condemn threats of nuclear use made during an ongoing conventional conflict or those that imply offensive military action. NPT States could call on all NWS to clarify their existing commitments not to threaten NNWS through existing negative security assurances. Additionally, NWS could undertake measures that demonstrate their defence and deterrence strategies reflect only a defensive posture (i.e., de-alerting, de-targeting, No First Use, NSAs). This commitment could then be reflected in NWS' national reporting and relate to other risk reduction and confidence-building measures.

NPT member states should, therefore, in the 11th review cycle aim to:

- Enhance transparency obligations of NWS regarding their nuclear weapons policies, including current scenarios of and thresholds for nuclear use.
- Advance dialogue and action on Article VI disarmament obligations.
- Defend and strengthen the nuclear taboo in both language and action by reinforcing and expanding other norms enshrined in the NPT, including the norm against explosive nuclear tests.

- Establish a subsidiary body at both within the 2026 RevCon review cycle and the Conference on Disarmament, working towards an unconditional, universal, and legally binding instrument to assure NNWS against the use or threat of use of nuclear weapons.
- Discuss perceptions of the (in-)admissibility of nuclear threats and work towards a common understanding of what NPT state parties consider a nuclear threat and condemn such threats collectively.

The extreme nature of nuclear deterrence

Ward Wilson and Paul Ingram

The wars in Ukraine, the Middle East, and Africa are raging in the context of rising great power competition on the one hand and, on the other, urgent issues that demand global cooperation, such as climate change and the crises in liberal democracies. Attitudes in Europe appear to have hardened significantly since the disastrous Russian invasion of Ukraine. Fearful of an aggressive Russia and believing that there is a need for a stronger European nuclear deterrent, Poland has been testing the waters to see whether it could host US nuclear weapons, and even recently, non-aligned Finland has also been considering nuclear deployments. Responding to the possibility of a new Trump Presidency and doubt over US commitments to Europe, debate has opened up in Germany over building a nuclear force of its own — a move that would irrevocably blow a hole in the global nonproliferation regime.

Looming over all is the shadow of nuclear conflict and talk of a possible Third World War. Confidence in the stability of nuclear deterrence is hitting a new low, yet states appear to be doubling down on their bets. Many states' leadership profess a shared faith in nuclear deterrence as a contribution to stability (at least when they or their allies control it), but this is probably because they have no idea of any alternative.

There is no question that nuclear threats are so frightening that they can work in dissuading states from aggression (or joining a war). It is said that Russia has been deterred from attacking NATO members or supply lines into Ukraine, and NATO has been deterred from joining the war with boots on the ground or no-fly zones. But the risk is fearsome, and the deterrent effects can wane over time.

It is an obvious but inconvenient truth that nuclear deterrence demands the signalling and credible readiness to fight a nuclear war. The risk of nuclear war is, therefore, baked into nuclear deterrence. As a result, suggestions to reduce nuclear risk, for example, by issuing no-first-use declarations, consistently run up against objections that they're not practical or undermine the credible threat at the heart of deterrence. Questions about whether or how often nuclear deterrence may fail catastrophically only serve to strengthen deterrence in the minds of advocates.

One additional core problem is often overlooked. Even when nuclear deterrence works, it leaves a residue of poison behind in international relationships, just as a detonated nuclear weapon leaves a trail of invisible radioactive fallout downwind.

The problem is that threats with nuclear weapons are extreme, by their nature, promising massive and devastating harm. It is very difficult to use nuclear weapons without killing civilians and turning large areas into rubble. This triggers something in human nature. Such catastrophic threats cross a line; they create wariness, mistrust, and avoidance in the person being threatened. If your neighbour threatens to kill you and shoot your children and then burn down your house and strangle your dog, you will find it difficult to coexist with, trust, or work cooperatively with that person forever after. Extreme actions and extreme threats make normal relations problematic going forward.

The consequences arising from the use of nuclear weapons are so extreme that the very threat dehumanises those on the receiving end and brutalises those making the threats. President Putin's

reminders of Russia's nuclear capabilities in early 2022 were a shock, and appear to be the root cause of resentment many in Europe feel towards him, even in the face of his actual destruction in Ukraine. This is despite the fact that analysts find it challenging to articulate what it was about his exact words that departed from past implied nuclear threats supporting aggressive military action (such as UK Defence Secretary Geoff Hoon against non-nuclear Iraq in March 2002).

Nuclear deterrence harms cohesion within the international community. Yet the need for cooperation among the nations of the international community has never been more urgent. Rising hostility and confrontation are all but destroying the international community's capacity to tackle the tremendous common challenges of our time: the weakening fabric of our societies and the rise of populism; responding to climate change; reversing the destruction of our planet's ecosystems; and managing weapons of mass destruction and the terrifying destructive possibilities arising from disruptive technologies such as AI. Greater collaboration between governments across many activities is essential for our collective survival. Efforts by many states in the international community to isolate Russia have disrupted negotiations in international fora. One example was the 2022 NPT Review Conference, when there was an attempt to get a consensus agreement that all nuclear power facilities in Ukraine should be under the control of Ukrainians (a demand that Russia would clearly veto).

Although the practice of nuclear deterrence is generally thought of within nuclear-armed states as relatively benign – like an invisible shield that protects nations from harm – it carries with it often unnoticed adverse effects, diluting the soft power of those states that practice it. Nuclear-armed states threaten global security and drive arms-racing behaviour and are perennially criticised by other states at every nuclear nonproliferation conference. Evidence that the use of nuclear deterrence may be wearing thin within the majority world is the emergence of the Treaty on the Prohibition of Nuclear Weapons – which now has more than 80 signatories and has entered into force. States parties to the Treaty are engaged in a host of serious activities aimed at re-evaluating and replacing nuclear deterrence as a defining feature of global politics. The very nature of nuclear deterrence – the credible threat to annihilate the other – exacerbates the current high levels of tension and angry antagonism between the three largest nuclear powers: Russia, the United States, and China.

When nuclear weapons first arrived on the scene, they were hailed by those responsible for US nuclear doctrine as tools that could do virtually anything, but over time, a certain amount of reality has sunk in. Some believe a “nuclear taboo” has developed, but perhaps the more plausible explanation for their non-use since 1945 is that they are simply too big and too destructive for fighting wars. Our militaries keep hold of them in the belief that within their integrated deterrence strategies (in which nuclear-armed states propose a broad toolbox of capabilities to uphold deterrence), nuclear weapons have an irreplaceable role. But in a world where there are many ways to deliver strategic deterrence across a wide range of effects, ways that are likely to be more credible than the threat of a nuclear attack, it is time to reverse the slide into a new nuclear arms race and instead let go of the dangerous and doubtful belief that nuclear weapons are essential.

Although the practice of nuclear deterrence is generally thought of within nuclear-armed states as relatively benign – it carries with it often unnoticed adverse effects, diluting the soft power of those states that practice it.

Of course, if other tools for effective strategic deterrence are more effective and credible, states could adopt them unilaterally. But this transformation is more likely if they come around to recognising these realities in tandem together. The N5 (formally misnamed P5) Process meeting of nuclear weapon states has continued to meet at the working level and has been discussing nuclear postures. In August, the Chair will be taken on by the Chinese, who rejuvenated the process when they last chaired five years ago. They are set to invite their fellow Nuclear Weapon States to consider the no-first-use doctrine. Still, perhaps they could also kick off a shared process that questions their received wisdom and explores the fundamental utility of nuclear deterrence itself.

How would humans react to nuclear catastrophe?

Adam Thomson and Paul Ingram

At least 70% of global trade is in or with the North. Some 60% of the world's servers are in the USA. The Euro-Atlantic and China account for over 50% of the world's GDP. If all this were eliminated or massively disrupted, southern hemisphere societies might also implode.

Most people prefer not to think about the worst that can happen. Even those who talk of World War Three experience a mental block about imagining the aftermath.

But decisions taken over nuclear posture and potentially the use of nuclear weapons must fully account for the consequences. Ignorance weakens deterrence and exacerbates risk. We don't plan national resilience so well. We reduce the chances of national survival, or at least human civilisation's survival. We make recovery from catastrophe that much harder.

Scientists have been analysing what the physical consequences of an all-out nuclear war would be. Would soot in the atmosphere trigger a nuclear winter? What effects would a nuclear electromagnetic pulse have on IT systems? Could nuclear survivors grow enough food to live? They have even tried to estimate the number of fatalities arising from different scales of nuclear war, concluding that fatalities from famine and climatic effects would likely be far greater than those from direct effects.

But if the concern is around deterrence, resilience, the survival of civilisation, and recovery, something is missing from their analysis. The cascading damage to human relations – social, economic, and political – could be just as destructive as the physical consequences. These social, economic, and political factors have barely begun to feature in the research, and (with some exceptions) there is little planning within governments for the aftermath of a nuclear exchange.

We can guess that in the face of extreme hardship, there would be heroism, compassion, inventiveness, and efforts at recovery. We can hope that there might be statesmanship and collaboration. But there would also be anarchy and chaos, driven by fear, misinformation, and tribalism.

Our complex world is now more vulnerable than it was when nuclear weapons were used on Hiroshima and Nagasaki in 1945. The trains were running into Hiroshima within three days of the blast because nuclear radiation was not understood. Today, the fear of radiation is universal. It is easy to imagine that tens of millions would flee. It is harder to imagine borders being opened to them unless those borders were overwhelmed. Is Africa ready for the European migrant flood? Or Mexico for the American one?

Moreover, in 1945 only two cities were hit – with bombs relatively small by today's standards. Each of the 40 or so UK nuclear warheads aboard a Trident submarine is more powerful by a factor of about six. There are thousands of weapons available to Russia and the US and hundreds to the other seven nuclear-armed states. The main nodes of civilisation in warring states – transport, shipping, energy, communications – might be hit multiple times.

Our highly interdependent modern systems of organisation, finance, and international trade mean that there are many more single points of failure. This risks triggering cascading disruptions through the value chains of the world's economies.

Nuclear war would occur in the northern hemisphere. At least 70% of global trade is in or with the North. Some 60% of the world's servers are in the USA. The Euro-Atlantic and China account for

over 50% of the world's GDP. If all this were eliminated or massively disrupted, southern hemisphere societies might also implode.

Even the leaderships within countries not immediately affected would experience severe challenges to governance – potentially without TV, radio, internet, social media, finances or even functioning economies. Evidence is mixed on how humans react when in mortal crisis. But it seems likely that those local communities that still retained some resources and capabilities would prioritise their own survival in possibly self-defeating protectionism.

The nature, scale, and longevity of climatic, radiation and electromagnetic pulse effects from a nuclear Armageddon would be harder to forecast than a pandemic or rising sea levels. And compared to climate change or a bio disaster its effects could be quite sudden and simultaneous, leaving little or no time for most of the international community to brace for the shock, let alone to adapt. Those areas unaffected directly by blast and radiation would need rapidly to anticipate reduced sunlight and cascading socio-economic impacts and take emergency action.

In summary, no communities, no corner of the planet would be immune. The second and third-order human effects could be massive. This includes vast population displacements, sudden disruptions to ordinary ways of life in countries far removed from the conflict, extreme dislocations of economies, acute tensions between affected nations, and significant loss of leadership and coordination capacity. Human civilisation might continue. But it could be a pale shadow, constrained, localised, and diminished.

So, what to do?

Of course, avoiding nuclear catastrophe in the first place is the best answer. However, a better understanding of the full consequences of failure would enable us to factor the risk into our strategies going forward. The US National Academies of Sciences study on potential environmental effects and socio-economic consequences from nuclear war mandated by Congress and expected to report in the next year or two may assist. Intergovernmental agencies with global responsibilities are beginning to turn their attention to these risks. But there is a compelling case for at least a first-order-of-magnitude global study of the impacts on the basic human needs of water, food, shelter, health, security, community, and governance, bringing together subject matter experts and government policy experts to identify the top priorities for response.

Given better understanding, plans, preparations, mitigations, and means of recovery could follow. Some degree of emergency preparation could be undertaken—not only to establish response infrastructure (such as seed banks) but also to prepare resilience coordination and governance mechanisms.

Practical action, in turn, would help ensure that strategists, political leaders, and supporting officials are familiar with the consequences of failure in nuclear deterrence. That should help to reduce that risk. It might also better motivate us to collaborate in the search for solutions. This is a particular responsibility for governments engaged in supporting nuclear deterrence, but it is a responsibility for all governments with publics that would suffer the human effects. In other words, all governments.

Avoiding nuclear catastrophe in the first place is the best answer. However, better understanding the full consequences of failure would enable us to factor the risk into our strategies going forward.

Deterrence of non-nuclear strategic threats: the case against deterring new technologies

Julia Berghofer

All N5 states, with the exception of China, have adopted a policy that permits the use of nuclear weapons to deter non-nuclear strategic threats. This is defined as weapons that nuclear weapon states (NWS) believe can have catastrophic effects similar to nuclear weapons. The UK, the US, and Russia have explicitly stated their intention to deter non-nuclear strategic threats from new technologies with nuclear weapons. It can be assumed that a similar policy is in place for France, although Paris is less explicit about it. This shift is problematic for several reasons. Notably, some EDT-related threats cannot be deterred by nuclear weapons. The assumption is that they can risk leading to a sense of complacency among policymakers, discouraging them from exploring alternative means of addressing such threats. Furthermore, this policy is at odds with the NWS' commitment in the Non-Proliferation Treaty (NPT) context to reduce the role of nuclear weapons. Moreover, it could potentially exacerbate proliferation risks if non-nuclear weapon states perceive nuclear weapons as an adequate tool to deal with any potential or hypothetical threat.

For these reasons, the NPT NWS - and all other nuclear weapons possessors - should refrain from deterring threats of non-nuclear strategic threats with nuclear weapons.

Evolution of the policy to deter new tech with nukes

From a historical perspective, nuclear deterrence of non-nuclear strategic-level attacks involving emerging technologies marks the third widening by NWS of the purpose of nuclear weapons. During the first phase of nuclear weapons, which lasted up until the 1980s, NWS saw deterrence of large-scale conventional and strategic-level nuclear attack as the main purpose of nuclear weapons. In the subsequent phase, NWS broadened the scope of nuclear deterrence to encompass other weapons of mass destruction, including chemical and biological weapons (CBW). France, for instance, adopted this policy in the 1980s. In the US, the relevance of deterring CBW became apparent following the entry into force of the Biological Weapons Convention (BWC) in 1975 and the Chemical Weapons Convention (CWC) in 1997.

The current phase represents the third expansion of the scope. This evolution looks different for each NWS, as evidenced by their respective strategic documents. The US was the first to explicitly deter emerging technologies with nuclear weapons. The Trump administration's 2018 Nuclear Posture Review referred to emerging technologies as a potential threat that might trigger a nuclear response, for the first time. The Trump administration argued that emerging technologies contribute to an "unprecedented range and mix of threats, including major conventional, chemical, biological, nuclear, space and cyber threats". The Biden Nuclear Posture Review of 2022 reiterated this position.

In the 2021 Integrated Review, the UK explicitly refers to emerging technologies which could have an impact comparable to nuclear weapons as a threat to be deterred by nuclear weapons. However, London does not mention any specific threats. At the same time, French policymakers remain even more vague. The National Strategic Review 2022 emphasises that the purpose of French nuclear deterrence is to protect the country from "any State

aggression against our vital interests, where it comes from and whatever form it takes". Given this wide formulation, it can be assumed that it extends to threats beyond the traditional threats that the French nuclear force is meant to deter. It is possible that Paris considers nuclear deterrence to be an effective tool against cyberattacks, for example.

In contrast, Russia is very explicit in its articulation of the new technology threats that it would consider deterring with nuclear weapons. According to the Basic Principles of State Policy of the Russian Federation on Nuclear Deterrence of 2020, these include strike systems in outer space, non-nuclear high-precision and hypersonic weapons, unmanned aerial vehicles, and directed energy weapons. Notably, the document does not mention cyberattacks.

Why is this shift problematic?

First, there is the substantial question of whether seeking to deter emerging technologies with nuclear weapons is an effective strategy. Although it is by no means clear what types of threats the UK or France, for example, seek to deter, one can assume that large-scale cyberattacks may be one of these threats. The US explicitly mentions cyber. The well-known pertinent attribution problem will, for the foreseeable time, hinder effective deterrence of cyberattacks. It is also possible for states to outsource malicious cyber activities to state-sponsored non-state actors who operate in a grey zone. The various state-sponsored hacker groups loosely affiliated with Russian state agencies provide evidence of this. Therefore, even if the attacker can be identified, in the case of non-state actors or state-sponsored groups, effective deterrence might not be possible (or not wanted as is the case for France).

Second, deterrence of non-nuclear strategic threats related to new technologies risks further blurring the lines between nuclear and non-nuclear strategic threats. It opens the door to new vulnerabilities and escalation risks. In an environment where there is already a lack of mutual understanding of each other's doctrines, this development creates further confusion and uncertainty.

Third, such a policy contradicts the NWS's pledge in the NPT context to reduce the salience of nuclear weapons. Although nuclear deterrence plays a significant role in the context of the war in Ukraine, the NWS have a special responsibility not to further broaden the role of deterrence to the extent that nuclear deterrence is perceived as a means of protecting states against any potential threat.

Fourth, this shift presents a risk that policymakers may be under the impression that any new technology-related threat can be dealt with by nuclear weapons. This not only leads to complacency by discouraging them from investigating alternative approaches to emerging threats, but it can also spur proliferation, as non-nuclear weapons possessors may consider nuclear weapons as a tool to protect themselves against any possible threats.

Deterrence of non-nuclear strategic threats related to new technologies risks further blurring the lines between nuclear and non-nuclear strategic threats and opens the door to new vulnerabilities and escalation risks.

Recommendations

It would be desirable for the N5 to have a conversation, when the time is ripe, on their policies of deterring non-nuclear strategic threats, as part of their longstanding dialogue on nuclear doctrines. This would be compatible with National Security Advisor Jake Sullivan's proposal to have a dialogue on the "guardrails for managing the interplay between non-nuclear strategic capabilities and nuclear deterrence". Such a dialogue could address the question of which emerging capabilities states would consider deterring with nuclear weapons and the problems that arise when they do.

In the absence of any definition of a 'strategic attack', as emphasised in Pranay Vaddi's June speech at the Arms Control Association, a public debate among experts and policymakers (at least in democratic states where such debate is feasible) is required to better understand the rationale behind deterring emerging technologies with nuclear weapons, and to explore potential alternative approaches. Furthermore, a debate is necessary to ascertain which of the potential threat scenarios could have strategic implications and whether alternative strategies, such as enhancing the resilience of critical infrastructure, might prove more effective. Crucially, there is also need for an N5 conversation on their doctrines, policies and understanding of strategic-level attack. In the NPT context this would provide an opportunity for non-nuclear weapon states (NNWS) to engage in a debate around these issues.

In terms of doctrines, the 2022 Nuclear Posture Review represents a shift towards a more conciliatory approach when compared to the 2018 review. For instance, the objective of reducing the salience of nuclear weapons was articulated as a goal in the 2022 review. The next US administration should at least continue to formulate the objective of reducing the role of nuclear weapons.

In conclusion, although this may currently not be feasible, it would be beneficial for the N3/N5 and, in general, the N9, to reach a consensus that the use of nuclear weapons to deter undefined new non-nuclear strategic threats could have destabilising effects and is therefore not a prudent approach. They should revert to the previously established policies that nuclear weapons, at most, deter the use of other weapons of mass destruction.

In the absence of any definition of a 'strategic attack', a public debate among experts and policymakers is required to better understand the rationale behind deterring emerging technologies with nuclear weapons, and to explore potential alternative approaches. In the NPT context this would provide an opportunity for NNWS to engage in a debate around these issues.

Time to engage seriously with the TPNW's security concerns

Alexander Kmentt

At its core, the Treaty on the Prohibition of Nuclear Weapons (TPNW) makes the argument that the humanitarian consequences of nuclear weapons are too grave and their risks too high for nuclear deterrence to be a sustainable basis for international security. This is underpinned by a growing body of new scientific evidence, demonstrating how these consequences would be more global, cascading and catastrophic than previously understood. The same goes for the increasingly complex risks associated with nuclear weapons. All States and peoples anywhere on Earth are at risk of becoming collateral damage in a multitude of ways in even a "limited" regional nuclear exchange. The Treaty's conclusion is, thus, that the nuclear deterrence security paradigm is not only highly precarious, fragile and unsustainable but also seriously affects and diminishes the security of non-nuclear states and, ultimately, all humanity. This concern is not only justified, given that nuclear risks are on the rise, but it also expresses a legitimate and evidence-based security perspective. TPNW supporters have highlighted this perspective countless times, in the treaty itself, through national or joint statements, and in the declarations adopted at their First and Second Meetings of States Parties.

Nuclear-armed states and their allies continue to oppose the TPNW. They have so far shown little readiness to engage with the above-mentioned security concerns formulated in and through the Treaty. While the humanitarian consequences are acknowledged in general terms, the argument is turned on its head to underscore the effectiveness of nuclear deterrence. Similarly, nuclear-armed states promote nuclear risk reduction as an important area of work. Still, the proposed scope entirely leaves out those risks that result from the possession of nuclear weapons and the practice of nuclear deterrence. Instead of engagement, the critique dismisses the Treaty as not taking today's security environment into account.

TPNW sceptics have obvious political reasons why they do not want to engage with the treaty. However, this also points to a more fundamental divide about security and the role of nuclear weapons. Nuclear-armed states posit arguments about security, stability, and the value of nuclear deterrence that are very much at odds with the notions of security, threat perceptions, and nuclear risks highlighted by the TPNW and widely shared among non-nuclear states.

At their Second Meeting of States Parties in December 2023, TPNW states parties decided to address this divide about security and nuclear weapons in a structured and substantive way. They established a consultative process to work on the security concerns of states under the TPNW. To this end, they will address two main issues: Firstly, that it is necessary to better "promote and articulate the legitimate security concerns and threat and risk perceptions enshrined in the Treaty resulting from nuclear weapons and nuclear deterrence". The second aspect of the consultative process' mandate is to "challenge the nuclear deterrence security paradigm by highlighting the new scientific evidence about the humanitarian consequences and risks of nuclear weapons and juxtaposing this with the risks and assumptions that are inherent in nuclear deterrence". The latter point on the nuclear deterrence security paradigm is ambitious but also highlights the key transformational potential of the TPNW and its underlying arguments.

Nuclear-armed states posit arguments about security, stability, and the value of nuclear deterrence that are very much at odds with the notions of security, threat perceptions, and nuclear risks highlighted by the TPNW and widely shared among non-nuclear states.

One of the key political challenges for the TPNW and its future prospects is, thus, to move today's nuclear weapons discourse to a facts-based engagement with the juxtaposition mentioned in the above paragraph. Weighing the alleged security benefit of nuclear deterrence against the mounting evidence that challenges this claim is crucial, especially in the current geopolitical situation, the increasing nuclear risks and the re-emphasis on nuclear deterrence that some actors advocate. The result could be a productive conversation about security and nuclear weapons and the veracity of arguments for and against nuclear deterrence.

One good starting point for an inclusive dialogue would be to acknowledge the lack of certainty on many issues related to nuclear deterrence. Security and threat perceptions are subjective and vary considerably. Nuclear deterrence is very context-specific, based on assumptions around human behaviour and stability. Whether it works or how it works is always uncertain. By contrast, we know for sure that it could fail, and if it does, there is clear evidence of the ensuing global consequences. What conclusions should then be drawn from the fact that there is no proof for the effectiveness or the ineffectiveness of nuclear deterrence, and to what extent can the "not knowing" be a point of convergence for the nuclear weapons debate?

Moreover, nuclear weapons proponents have successfully claimed realism as the basis for the nuclear deterrence security paradigm while portraying the pursuit of nuclear abolition and nuclear disarmament as idealist, unrealistic, or naive. The increasing body of scientific evidence about the magnitude and complexity of the humanitarian consequences and mounting and complex risks associated with nuclear weapons challenges claims of nuclear deterrence stability. Add to this the assumptions and risk-taking that are woven into nuclear deterrence theory, the possibilities of bias and overconfidence, as well as the added layers of risks due to new technologies; consequently, this adherence to a belief in nuclear deterrence looks, at best, increasingly shaky. At worst, it seems like dogmatic group-think that marginalises and rejects dissenting views and postulates a high-risk bet with the security of humanity as a whole as a sustainable approach to international security. Therefore, from the perspective of the TPNW, a move away from this security paradigm looks like a significantly more realist approach than the continued idealist belief in the stability and sustainability of nuclear deterrence.

The consultative process is set up as an initially internal discussion among TPNW states parties with the involvement of other stakeholders, such as the TPNW's Scientific Advisory Group, the International Committee of the Red Cross (ICRC), the International Campaign to Abolish Nuclear Weapons (ICAN), and experts. Its mandate is to develop a report with a comprehensive set of arguments and recommendations for the Third Meeting of States Parties in early 2025. To this end, states parties have agreed on a work programme of guiding questions and virtual consultations. This process could lead to a more joined-up consolidation of TPNW states parties' own security perspectives and support their efforts to attract additional ratifications.

Most importantly, it is intended to strengthen their demand for substantive engagement with the Treaty's security arguments that has thus far been lacking from the TPNW sceptics. This

engagement will need to be pursued by TPNW supporters through a discursive and political process using all available fora where nuclear weapons and security can be addressed, including within the Non-Proliferation Treaty. Given the past reluctance of opponents of the Treaty, it will undoubtedly be challenging and require patience. Nevertheless, it is more urgent than ever, given the precarious state of the nuclear disarmament and non-proliferation regime and the high level of nuclear risks. And, it is ultimately a key *raison d'être* of the TPNW.

The global nuclear weapons discourse should progress in a way that recognises that all States have a legitimate stake in this existential issue. We urgently need this conversation to uphold the nuclear taboo and to counter the slide into nuclear arms racing and possible nuclear conflict. TPNW states parties are investing in such a discourse. Current TPNW sceptics should change their stance and start engaging substantively with these legitimate security arguments.

The views expressed in this commentary are those of the author and do not necessarily represent the position of the Austrian Foreign Ministry.

Quieting the nuclear rattle: Responding to Russia's tactical nuclear weapons exercises

Pavel Podvig

On 6 May 2024, the Russian Ministry of Defense announced that the president directed the military to conduct an exercise to test “practical aspects of the preparation and use of non-strategic nuclear weapons.” What was particularly notable in this announcement was that it was described as a response to “certain provocative statements and threats made by some Western officials.” The Foreign Ministry explained in a separate announcement that the statements in question were the words of the leaders of France and the United Kingdom, who suggested that the West should be more directly involved in the war in Ukraine, either by sending troops or by allowing Ukraine to use Western armaments to strike Russian territory.

Military exercises are not uncommon, including those involving non-strategic nuclear forces. NATO holds an annual Steadfast Noon nuclear exercise in Europe, and France conducts regular exercises as well (and, by coincidence, conducted a test of a nuclear-capable cruise missile around the time of the Russian exercise). However, while these are indeed meant to be part of the deterrence messaging, none of them has ever been as explicitly linked to specific political or military developments as the one announced by Russia. The Kremlin was clearly sending a message intended to convey its readiness to escalate, and this was certainly not the first time that Moscow has attempted to bring its nuclear weapons into the context of its invasion of Ukraine. This time, however, there was a material aspect to this attempt as the exercise was to involve the military units responsible for handling and using nuclear weapons.

The exercise raised several questions about the dangers associated with it. Is it an attempt to go beyond signalling and bring non-strategic nuclear weapons closer to the frontline, prepared for use? How can one respond to such an explicit demonstration of nuclear weapons capabilities?

The first question appears to have a reasonably clear answer. On 21 May 2024, the Ministry of Defense reported that it began the first part of the exercise involving Iskander-M missiles and air force units that operate Kinzhal missiles. The official video of the exercise showed that it involved Iskander-M ballistic and cruise missiles, a Tu-22M3 bomber, and a MiG-31K aircraft carrying Kinzhal. The video showed elements of the procedures that an exercise of this kind would test.

In the Russian practice, non-strategic nuclear weapons are normally stored in a relatively small number of dedicated storage sites. The preparation for use would require taking weapons out of storage and their transfer to designated rendezvous points, where they are to be mated with their delivery systems. This is exactly what can be seen in the official account. Although the video appears to have been staged for the cameras, at least one of the systems shown, the Iskander-M cruise missile, was sufficiently different from previously seen missiles, suggesting that it is a nuclear-capable version. At the same time, nothing indicated that the exercise involved anything other than training replicas of weapons or that actual nuclear weapons were indeed removed from the storage sites.

The structure of the exercise also explains Belarus's role. Belarus announced—apparently to the great surprise of its Russian partners—that it had also taken part in the training. The Belarusian military appears to have tested its part of the procedure—the dispersal of aircraft and missile launchers, activities that can be conducted without the involvement of the Russian army units that handle nuclear weapons.

Although it appears that the second part of the exercise, which might involve naval weapons, is still in the works, all evidence indicates that it is not the preparation for introducing nuclear weapons into the war. The exercise was intended to work as a political signal and likely achieved this purpose.

A more difficult question is: What is the appropriate response to this kind of signalling? Nobody seriously expects Western officials to walk back the statements that provoked Russia's move. Indeed, discussions of more direct Western involvement in the conflict continue and may have even intensified. At the same time, it would be wrong to ignore Russia's actions completely, if only to prevent it from moving to more provocative actions. The Kremlin appears to be following the signalling path charted by a number of hawkish Russian experts, and it cannot be ruled out that it is prepared to take more steps up the escalation ladder.

To prevent this from happening, the international community must double down on its message that nuclear threats are inadmissible. The universal and consolidated backlash against nuclear threats was one of the main factors that helped quiet the nuclear rhetoric surrounding the war. To make this backlash more effective, Western states should tone down their own message of reliance on nuclear deterrence and work together with a broad coalition of states, from their allies to China and India and the states parties to the Treaty on the Prohibition of Nuclear Weapons. Opposition to nuclear use is a powerful unifying message that can bring together states that may have diverging views on the war in Ukraine. Such a coalition can render nuclear threats politically untenable, opening more options for supporting Ukraine's efforts to defend itself.

Opposition to nuclear use is a powerful unifying message that can bring together states that may have diverging views on the war in Ukraine.

Why and how the NPT must prepare for an arms control interregnum in the post-New START era

Maximilian Hoell

In a move disputed under the provisions of the New Strategic Arms Reduction Treaty (New START), Russian President Putin “formally suspended” Russia’s participation in the treaty on February 28, 2023, citing concerns over U.S. support for Ukraine and the need to include British and French nuclear forces in arms control talks. Russia’s suspension of New START, as well as the treaty’s impending expiration on February 4, 2026, with no subsequent agreement in sight, means that the global nuclear order edges closer to the collapse of formal bilateral nuclear arms control.

Initially set for a ten-year duration, New START was extended by mutual agreement in early 2021 for an additional five years until February 4, 2026. The terms of the treaty do not allow for a second extension, however, meaning that the legally binding numerical limits on U.S. and Russian strategic offensive forces will cease to be in effect after that date. Despite the treaty’s suspension, both parties have stated publicly that they continue to abide by New START’s numerical caps on strategic offensive weapons and launchers. Although, in theory, both parties could continue to voluntarily observe the New START central limits even after the treaty expires, in practice, such voluntary measures will be rather fragile. They would lack the verification provisions provided under the treaty, and many have questioned New START’s continued relevance in a deteriorating and increasingly multipolar security environment.

The coming “arms control interregnum”

Attempts to negotiate new arms control agreements between the United States, Russia, and China in a bilateral or trilateral constellation have proven unsuccessful thus far. Although Russia and China have signalled an interest in renewed constraints on U.S. ballistic missile defence systems, novel restraints on U.S. conventional prompt global strike capabilities (CPGS) and extended deterrence, and the termination of AUKUS submarine cooperation, none of these proposals have appealed to the United States.

But whereas Washington remains ready to engage in arms control talks with Russia and China “without preconditions,” Russia is unwilling to enter negotiations with the United States unless the United States guarantees the end of Western military support for Ukraine. As Russian Deputy Foreign Minister Ryabkov has recently reiterated, Russia rejects the idea of “compartmentalising” arms control discussions from the wider spectrum of U.S.-Russian strategic relations. China, too, may be reluctant to “compartmentalise,” and “only seek to discuss nuclear weapons in the context of the overall strategic relationship.”

At the same time, China, like Russia, has demonstrated little interest in mitigating or managing nuclear risks, recent U.S.-China talks notwithstanding. According to the 2023 U.S. China Military Power Report, China currently possesses an arsenal of around 500 operational nuclear warheads, with the U.S. Department of Defense estimating that “the PRC will probably have over 1,000 operational nuclear warheads by 2030, much of which will be deployed at higher readiness levels and will continue growing its force to 2035 in line with its goal of ensuring PLA modernisation is ‘basically complete’ that year.” China’s drastic expansion of its arsenal signals the emergence of a new tripolar security environment, in which the

United States and its allies face, for the first time, two nuclear peers at once.

Although the emerging tripolar nuclear order makes reciprocal arms control more valuable for ensuring transparent and predictable deterrence relationships, particularly in regard to reducing uncertainty about force structure, tripolarity complicates arms control significantly. A tripartite strategic forces agreement placing the same firm numerical limits on the Russian, Chinese, and U.S. arsenals is unlikely to appeal to Washington, Moscow, and Beijing. From Washington's perspective, a worst-case scenario could see Moscow's and Beijing's "friendship without limits" evolve into a combined strategic force outnumbering the American strategic arsenal by two to one. It is equally questionable if such an agreement would appeal to Russia or China, given the considerable uncertainty about their nuclear intentions. For example, if Russia concludes from its war against Ukraine that it requires an even greater dependence on nuclear forces to compensate for conventional shortcomings, then it is unlikely to commit to nuclear arms control. Similarly, China's nuclear buildup has left analysts wondering if Beijing's nuclear arsenal will peak at the projected 1,000 warheads by 2030, or if China will seek nuclear parity or superiority. Thus, Beijing may or may not be interested in arms control in the future.

Surviving the arms control interregnum

The NPT membership must prepare for a security environment unconstrained by nuclear arms control. The defining challenge of this arms control interregnum is to ensure the NPT survives Russian brinkmanship and Chinese ambivalence.

Over the last decade, Russia's behaviour has caused the collapse of the Intermediate-Range Nuclear Forces Treaty, the Open Skies Treaty, the Conventional Forces Europe Treaty, and the weakening of the Comprehensive Nuclear-Test-Ban Treaty and the Chemical Weapons Convention. Moscow's obstructionism at the 2022 NPT review conference and the 2023 preparatory committee indicate that Russia is openly weaponising the NPT in a bid to collapse the rules-based international order. President Putin seeks "new rules or no rules."

China, for its part, appears mostly ambivalent about the NPT rather than openly confrontational toward the nonproliferation regime. But despite China's stated desire to be seen as a responsible nuclear-weapon state, Beijing has drastically expanded its nuclear arsenal, undermined the enforcement of sanctions against the DPRK, and refused to adopt a moratorium to produce fissile material for weapons purposes.

These different approaches notwithstanding, Moscow and Beijing may converge in the assessment that a robust NPT is primarily a Western objective and, as such, not necessarily in their best interest. After all, a nuclear-armed DPRK and a nuclear-arming Iran may be more of a nuisance or distraction to the Western world than to Moscow and Beijing. Unlike during the Cold War, when the Soviet Union saw nonproliferation as a tool to stabilise U.S.-USSR deterrence, today Moscow and Beijing may view the emergence of smaller nuclear powers as diverting attention away from Moscow's

and Beijing's nuclear behaviour. To varying degrees, Moscow's and Beijing's calculus may be that a weak or defunct NPT will drain Western resources, symbolise the weakening of the rules-based international order, and precipitate the further material decline of the collective West.

The arms control interregnum will likely exacerbate the existing divisions between the NPT membership. But if the NPT review process simply becomes a talking shop in which review conferences fail to reach consensus on an outcome document, then the likelihood that the NPT will share the fate of the now defunct arms control treaties increases significantly. Although the NPT can only succeed with Russian and Chinese cooperation (or at least acquiescence), the crucial task before the NPT membership for the foreseeable future is to prevent Russian brinkmanship and Chinese ambivalence from eroding the regime.

Safeguarding the NPT through the arms control interregnum requires leadership. The West must offer a compelling vision for ensuring the NPT's resilience resonates with as broad a coalition of states parties as possible across geographic and political divides—including with those states parties that will lament the backtracking on article VI, and with those states parties that have preferred not to take sides in what they perceive as a new cold war.

In practical terms, this vision must go on the offensive with a persuasive narrative about real nuclear dangers, the value of the nonproliferation regime, and the responsibility of Western actions (including modernisation). The community of NPT supporters must join forces to call out Russian obstructionism and Chinese ambivalence to undermine their credibility and demonstrate that the treaty remains relevant and is being upheld to the extent possible. Although statements in isolation will not suffice, one means of demonstrating the NPT's resilience and the international community's commitment to the regime is reaffirming the value of the NPT in the new security environment, highlighting that a strong NPT strengthens international security, and that a weak or defunct barrier to nuclear proliferation diminishes international security. The NPT membership should also use the arms control interregnum to prepare future arms control opportunities by advancing disarmament verification and continuously seeking cooperative risk reduction measures, echoing the cold-war pattern where arms competition eventually led to negotiated arms limitation treaties.

The views and opinions of the author expressed herein are his own personal views and do not necessarily state or reflect those of the United States government or Lawrence Livermore National Security, LLC. LLNL-TR-859582.

This vision must go on the offensive with a persuasive narrative about real nuclear dangers, the value of the nonproliferation regime, and the responsibility of Western actions.

How to bolster nuclear-weapon-free zones

Tarja Cronberg

According to the UN, the establishment of nuclear-weapon-free zones (NWFZ) is a regional approach to strengthening global nuclear non-proliferation and disarmament norms and consolidating international efforts towards peace and security. NWFZs are also a key element in underpinning and strengthening the NPT.

General Assembly resolution 3472 B (XXX) defines a Nuclear-Weapon-Free Zone:

“as any zone recognized as such by the General Assembly of the United Nations, which any group of States, in the free exercises of their sovereignty, has established by virtue of a treaty or convention whereby:(a) The statute of total absence of nuclear weapons to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined;(b) An international system of verification and control is established to guarantee compliance with the obligations deriving from that statute.”

Article VII of the Nuclear Non-Proliferation Treaty (NPT) states:

“Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories”.

NWFZ can be seen as stepping stones to a nuclear-weapon-free world. For example, former US Ambassador Thomas Graham argued, “An alternative route to nuclear disarmament is needed. The NWFZ movement, little heralded in conferences on nuclear policy around the world, might be such an alternative”.

Today, there are five regional NWFZ with 118 member states covering a third of the World’s population. In addition, Mongolia is a one-state zone. These zones are comprised of states that have voluntarily committed to abstinence and renounced nuclear deterrence in all forms. No member state has ever withdrawn from a zone, and there are no examples of suspicious nuclear weapon programs by any state party to a zone treaty. All NWFZ members have fulfilled their International Atomic Energy Agency (IAEA) safeguards obligations.

So far, proposals for new zones in Europe, the Middle East, and North-East Asia have not materialised. There are two main reasons for this.

The lack of unconditional and legally based negative security guarantees

First, NWFZ treaties include annexed protocols for the P5 to sign and ratify. According to these protocols, each party undertakes not to use or threaten to use a nuclear weapon or other nuclear devices against any state of the treaty. The Latin American and the Caribbean Treaty is the only one where all the P5 states have ratified the protocol. In the case of the South Pacific, African, and Central Asian treaties, all the P5 states except the United States have ratified these protocols. The Southeast Asia treaty has neither been signed nor ratified by any of the P5. The legal status of these assurances has also not been clarified. In theory, if the zone treaty

is in force and a P5 state has ratified it, it is binding for the state in question. However, it is claimed that these statements only express an intention and are not legally binding. For example, the United States does not consider these guarantees as international agreements, nor have they been approved domestically according to the procedures of the US Congress.

The final decision to use or not use nuclear weapons in any crisis of fundamental national interest will be made ad hoc. It will not be constrained by published doctrines and public statements. An example of how agreements related to nuclear weapons may be disregarded is the Budapest Memorandum of 1994. Furthermore, during the lifetime of the NPT, nuclear weapon states (NWS) have expanded the possible circumstances under which they might use nuclear weapons against non-nuclear weapon states (NNWS) and the NWFZs. Some NWS reserve the option to use nuclear weapons against NNWS acting in alliance with a NWS, to deter chemical or biological weapons attacks, to prevent non-nuclear strategic attacks, and even to limit damage by a nuclear attack. The latest US conditions are even linked to the evolution of technologies, the US Nuclear Posture Review states that the US reserves the right “to make any adjustments in the assurance that may be warranted by the evolution and proliferation of non-nuclear strategic attack technologies and the US capability to counter these”.

The existence of a nuclear weapon state in the region

Second, the process related to WMD-Free Zones in the Middle East is the most obvious example of the difficulties of strengthening NWFZs, although the proposed North-East Asia NWFZ faces similar problems as do the potential zones in Europe and South Asia.

The creation of a WMD-Free Zone in the Middle East has intimately been tied to the negotiations of the NPT. Adopting the resolution on the Middle East was a necessary condition for regional states to agree to the indefinite extension of the NPT in 1995. The resolution calls upon all states in the Middle East to take practical steps towards the establishment of an effectively verifiable Middle East zone free of weapons of mass destruction and their delivery systems. It further calls on these states to refrain from taking any measures that preclude the achievement of this objective.

The 1995 resolution has been followed by a number of failed efforts to proceed with a regional treaty. Seen from the NPT process, these are:

- In 2010, the NPT Review Conference, in its final document, called for a conference to be held on the zone. Although a number of consultative meetings took place, plans for the conference were cancelled in November 2012.
- At the 2015 NPT Review Conference, Egypt proposed a conference on the WMD-Free Zone in the Middle East, but the proposal was rejected. The Egyptian delegation walked out of the meeting.
- At the August 2022 RevCom, all Arab states demanded the implementation of the 1995 resolution on a WMD free Middle East.

To solve this impasse in 2018, the UN General Assembly decided to hold yearly conferences on a Middle East WMD-Free Zone until this would become a reality.

A way forward

The annexed protocols to the NWFZ treaties are not enough. This is not only because they have not been signed by all of the P5, but their legality is also in doubt, and four NWS have not even been asked to sign. At the 10th NPT Review Conference in August 2022, a proposal was made to make the negative security assurance to NNWS binding to guarantee their legality.

While a general law applying to all the NNWS may be difficult to achieve, negative security assurances to the NWFZ states should be considered as the first step to making NWFZ more meaningful. Parties to NWFZs states have a double commitment to their nuclear-free status (both through the NPT and the respective regional treaty). They are thus less prone to proliferation, in comparison, for example, with other NNWS that are on the threshold of accessing nuclear weapons should they decide to do so.

As for the second hindrance, new innovative approaches are needed. It is unlikely that countries like France, North Korea or Israel will abolish their nuclear weapons to enable the EU, North-East Asia or the Middle East to become NWFZs. Nevertheless, several approaches have been proposed. One is to limit the zone's territory to start with partial NWFZs. This approach has already been applied in some existing zones. For example, although the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean was signed in 1967, Cuba didn't join the zone until 2002. Partial European zones have also been suggested to start the process.

In North-East Asia, the proposal of an NWFZ would allow the security of three non-nuclear countries (Japan, South Korea, and North Korea) to be guaranteed by the US, Russia, and China. Given the experience with the Budapest memorandum, these guarantees would have to be legally binding. To be sure, the three guarantors of such a zone would have to engage in serious trust-building before their guarantees would likely be perceived as credible.

The question of the Middle East is extremely sensitive not only in the region itself but also for the survival of the NPT. The lack of progress in the zone, 50 years underway, is already undermining trust in the NPT and promoting future proliferation in the Middle East. Unconditional and legal guarantees could provide a solution during a transfer period before all member states can or are willing to join the zone.

While a general law applying to all the NNWS may be difficult to achieve, negative security assurances to the NWFZ states should be considered as the first step to making NWFZ more meaningful.

Why Iran's missile strikes pose a real problem for Pakistan

Rishi Paul

The recent conventional skirmishes between Pakistan and Iran underscore a valuable truth: having nuclear weapons does not guarantee that the 'have nots' will refrain from pursuing military action against a nuclear-armed state. The Falklands War illustrates this point when, in the 1980s, Argentina invaded the Falkland Islands, even though Great Britain is a nuclear weapon state. Although the recent missile strikes between Iran and Pakistan differ – entirely – from the Falklands War, the limited utility of nuclear weapons to deter non-possessors from pursuing military action against a nuclear-armed rival is revealing and relevant to the recent skirmishes. Another recent example of military action against a nuclear possessor is Iran's missile and drone attack on Israel on April 13th, which was calibrated to avoid massive retaliation and telegraphed in advance via Turkey, intercepted by Israel and its allies, and had one reported civilian casualty.

The UK's failure to deter Argentina's General Gualtieri did not undermine the credibility of its deterrence: The UK has in place negative security assurances, which is to say that Trident is designed to deter acts of aggression that are perpetrated by nuclear weapon states against UK vital interests. It does so by the threat of retaliation and the threat of imposing unacceptable costs: a combination of deterrence by denial and punishment, which is the bedrock of the UK's deterrence framing.

By contrast, the failure to deter Iran's recent strikes matters for Pakistan because its nuclear strategy is predicated on the credibility of its undeclared option of "first use" and the ability to exert a level of control over shared risks. The inability of Pakistan to counterbalance the conventional superiority of its archrival (India) with a proportional response underscores instability at the lower conventional level. For this reason, Pakistan's nuclear doctrine centres on the threat of nuclear escalation – the willingness to engage in a competition of nuclear pain – to deter and keep India at bay. However, and notwithstanding Iran's ambiguity over whether it intends to develop nuclear weapons, the use of conventional military force by Iran introduces a new dimension of threat perception that Pakistan needs to consider, especially in the context of risk reduction and crisis management.

The key feature of Pakistan's nuclear strategy – coercive nuclear escalation – bears a strong resemblance to the logic underpinning NATO's Cold War nuclear strategy. During the Cold War, Soviet Warsaw Pact forces outnumbered NATO forces by roughly three to one, and NATO stood little chance of prevailing in a conventional war. The alternative was to initiate a nuclear war, which was tantamount to suicide. Finding itself between a rock and a hard place, NATO solved the dilemma – in theory – by developing tactical nuclear weapons to induce Soviet caution. Rather than rely on the fear of US massive retaliation, which lacked credibility, NATO would use fewer, lower-yield tactical nuclear weapons against Soviet military targets. The purpose was to compel rollback by convincing the Kremlin that the war was "spinning out of control", thereby pressuring Soviet leaders to stop the invasion.

Pakistan's conventional capabilities are superior to Iran's, and Tehran's strike was in, not on, Pakistan, being targeted against two strongholds of the anti-Iran insurgent group Jaish al-Adl (Army of Justice). Pakistani military personnel and assets were not targeted, although Pakistan has claimed civilian casualties.

It is inconceivable even to suggest that Islamabad would have considered nuclear reprisal against Iran. Instead, it chose to strike proportionally at what it claims were camps of Baluch separatists in Iran instead of direct Iranian military targets. Nonetheless, in responding with military force, Pakistan risked upending a complex and fragile relationship with its neighbours – Afghanistan, India, and Iran – triggering a long-term, three-front dilemma.

The current status quo is on shaky ground because any potential future decision by Iran to go nuclear would have implications on deterrence framing for Islamabad. This is because Islamabad cannot be certain that their cordial/tolerating relations with Iran will endure once nuclear weapons are in the mix. In this regard, Pakistan's nuclear strategy, which calls for "full spectrum dominance", could soon morph from dyadic deterrent framing into a twin-track deterrence approach, not too dissimilar from India's deterrence framing against Pakistan and China. In addition, because Iran cannot match the conventional capabilities of its nuclear-armed adversaries – Israel and the US – Tehran could look to the nuclear doctrine of Pakistan for guidance on how to deter its adversaries, in addition to/beyond its "deterrence network" of allied non-state armed groups. Tehran could, therefore, decide to frame nuclear deterrence around a similar policy of first use, thereby lowering the threshold for nuclear use to ensure their adversaries act cautiously.

But what of the commonly held realist assumption that nuclear states do not fight wars with each other? India and Pakistan's adversarial relationship is a paradox that turns this assumption on its head. Since declaring themselves nuclear-armed, the two South Asian rivals have fought at a conventional level and engaged in numerous military skirmishes. In particular, the 1999 Kargil War challenges the assumption that the absence of war between nuclear powers has been granted the status of empirical law. The so-called "stability-instability paradox" is often used by neo-realists to describe this phenomenon and can best be described as the "fear of nuclear escalation". According to the paradox, strategic stability, meaning a low likelihood that conventional war will escalate to the nuclear level, reduces the danger of launching a conventional war. But in lowering the potential costs of conventional conflict, strategic stability also makes the outbreak of such violence more likely. In this context, India and Pakistan display an uneasy (often scary) level of comfort with direct military engagement and run the serious risk of a "hot hand fallacy"; although not a foregone conclusion, sooner or later, through some form of miscalculation, misinterpretation or misperception, nuclear thresholds could be breached.

What implications does the stability-instability paradox have for Islamabad and Tehran? Past behaviour can portend the future, and the recent skirmishes could also reveal a risk of complacency in thinking that events can be controlled. Should Tehran decide to go nuclear, its entry into the 'club' will further complicate a volatile and nuclear-crowded region. In this context, the Iranian-Pakistan missile strikes underscore intricate geopolitical dynamics at play, with multiple actors vying for influence and pursuing divergent agendas.

The Iranian-Pakistan missile strikes underscore intricate geopolitical dynamics at play, with multiple actors vying for influence and pursuing divergent agendas.

This incident highlights the need for Islamabad to give pause to thought and consider how it can develop bilateral mechanisms and understandings with Iran to alleviate future escalatory pressures. Although Iran has not declared an intention to weaponise its nuclear programme and remains a signatory to the NPT, their continued membership provides little comfort that it will honour treaty obligations and refrain from the development of nuclear weapons. In addition, IAEA Director General Rafael Mariano Grossi recently warned that “Iran has enough highly enriched uranium to build several nuclear weapons if it chooses”. However, there is also a widespread view that Tehran will be deterred from weaponising because of their fear that this might trigger an attack by Israel and/or the US, although this is a matter for debate.

North Korea’s path to nuclear-armed status also underlines the fact that membership of multilateral accords will not prevent a state from clandestinely developing nuclear weapons if they are convinced that a nuclear deterrent can meet its security needs. In this context, dialogue to revive the Joint Comprehensive Plan of Action (JCPOA) is moribund, and it is unlikely that any progress will be seen soon.

As a nuclear-armed state outside the NPT framework, Pakistan still bears special responsibilities, and with the clock ticking over Iran’s nuclear status, it is incumbent upon Islamabad to now enter a phase of internal “critical introspection” in identifying what Islamabad consider these special responsibilities to be. A step in this direction could engender internal Pakistani discussion on what Nuclear Confidence Building Measures (NCBMs) with Iran could look like if Iran were to weaponise its nuclear programme. Although no substitute for arms control accords, NCBMs are an important endeavor and an important tool for building trust and mitigating nuclear risks. Although further development of NCBMs between India and Pakistan have faltered, existence of the regime can induce some form of caution in behaviour and prevent catastrophe.

This incident highlights the need for Islamabad to give pause to thought and consider how it can develop bilateral mechanisms and understandings with Iran to alleviate future escalatory pressures.

Unleashing the power of Pillar III of the Non-Proliferation Treaty for sustainable development in Africa

Daniel Ajudeonu

Pillar III of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)— the peaceful uses of nuclear energy pillar —provides a veritable framework to foster sustainable development in Africa. Nuclear energy possesses the potential to reduce reliance on fossil fuels, accelerate clean energy transition, and power industrial productivity through stable electricity supply across Africa. The implementation of the NPT thus holds great potential to catalyse Africa’s development.

The NPT is the only global treaty that simultaneously provides an opportunity for African countries to directly address nuclear weapons risks and some of Africa’s developmental challenges, such as climate change and energy poverty. Although other nuclear treaty regimes, such as the Treaty on the Prohibition of Nuclear Weapons (TPNW) and the Comprehensive Nuclear-Test-Ban Treaty (CTBT), are essential for converging countries towards a ban on nuclear weapons and a ban on nuclear weapons tests, none of these treaties provide a direct solution to Africa’s developmental challenges. In this regard, the NPT is a unique regime.

Despite this, the NPT is viewed as discriminatory by many states, especially those in the global south. This is because, firstly, it officially divides between nuclear-weapons states (NWS) and non-nuclear-weapon states (NNWS) and maintains the nuclear monopoly of a select few countries. Secondly, these recognised NWS, who are obligated by the NPT to pursue disarmament according to Article VI, have not only been slow in their progress but appear to be journeying on a new nuclear arms race, leaving NNWS frustrated and denying them one of the ultimate goals of the treaty – nuclear disarmament. Thirdly, the restrictions placed on NNWS’ access to nuclear technology for civilian use by countries with advanced nuclear technologies, e.g through nuclear export control (such as the Nuclear Suppliers Group), hinder the potential use of peaceful nuclear energy and developmental prospects in NNWS that are not advanced in nuclear technology, inhibiting cooperation on Pillar III. By striving to fulfil Pillar III obligations, NWS would strengthen not only the NPT but also the declining confidence of NNWS in the regime.

We are also witnessing rollbacks in states’ commitment to the NPT, such as the 10th NPT Review Conference concluding without an agreement, the modernisation of nuclear arsenals by P5 states, and Iran’s enrichment of some of its uranium stock to near-weapons grade level. These are clear indications of a negative trajectory away from global nuclear disarmament – contrary to Article VI of the NPT. NWS fulfilling Pillar III obligations to African countries would prevent further rollback and demonstrate their commitment to the treaty regime. In particular, Article IV(2) states, “All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy”. Rather than trivialised, the issue of nuclear technology transfer should be prioritised.

When nuclear technology transfer to the African region is mentioned in multilateral gatherings, the issue of proliferation risk is often raised. While there is a risk, the potential gains are enormous, and the region is striving to accelerate its developmental pace and integrate nuclear energy into its energy architecture while upholding international nuclear safety and security standards.

This commitment to safety and security standards contributed to the establishment of the African Commission on Nuclear Energy (AFCONE), which is responsible for the “coordination and promotion of safe and secure peaceful applications of nuclear science and technology, as well as regional and inter-regional cooperation for that purpose.” It is also the responsibility of AFCONE to “foster peace and security in Africa, and globally, through overseeing the full and effective implementation of the nuclear non-proliferation and disarmament provisions of the Treaty of Pelindaba”, also known as the Africa Nuclear Weapons Free Zone Treaty.

Even with the establishment of AFCONE, it is not unsurprising for the international community to be concerned about proliferation risks if nuclear technologies are transferred to African countries because of the political instability and insecurity challenges facing many states in Africa. While the risks of proliferation are present, African countries with relatively stable political and security climates, such as Botswana, Namibia, and Ghana, that can successfully establish robust regulatory frameworks, as well as safety, security, and safeguard mechanisms in accordance with International Atomic Energy Agency (IAEA) standards and international obligations, should be granted technology transfer painlessly.

Insufficient technical expertise of the recipient country may be another barrier, even if technology transfer is not a burden, as many African countries lack human capital that is skilled in nuclear science and technology. To overcome this, countries with advanced nuclear technologies should support countries that have limited expertise in technical capacity building, such as developing training programs and research initiatives. This is what Pillar III is meant for.

It is also the duty of African countries that desire nuclear energy to create an environment where nuclear energy production can thrive securely. Such countries should work to establish a safe and secure environment, establish robust regulatory frameworks, implement robust safety, security, and safeguard mechanisms in line with IAEA standards and international obligations, and develop the capacity of their human capital. African countries currently considering nuclear energy include Nigeria, Ghana, Kenya, Uganda, Namibia, and Rwanda.

As African countries advance their civilian nuclear agenda, their use of nuclear reactor-only technology or nuclear reactor with fuel cycle technology is a potential debate in the international community due to the ability of nuclear reactors with fuel cycle technology to produce highly enriched uranium or plutonium, which could be used to make a nuclear bomb. Meanwhile, nuclear reactor-only technology could only be used for heat generation to produce electricity. Both options have advantages and disadvantages. Nuclear reactors with fuel cycle technology can also be used for mining, enriching, and fabricating nuclear fuel, which can then be used in electricity production or for producing weapons-grade fissile material. It can also be used for recycling and disposing of nuclear fuel and managing radioactive waste. Should African countries be allowed to obtain nuclear reactors with fuel cycle technology? This is a complicated issue and is open for debate due to the risks involved.

By striving to fulfil Pillar III obligations, NWS would strengthen not only the NPT but also the declining confidence of NNWS in the regime.

There is a considerable long-term cost trade-off between foregoing a nuclear reactor with fuel cycle technology for a nuclear reactor-only technology. A nuclear reactor with fuel cycle technology provides opportunities for recycling and reusing spent nuclear fuel, minimising radioactive waste, and saving costs on fuel procurement and waste management, which a nuclear reactor-only technology does not. While it is not impossible for African countries to securely manage nuclear reactors with fuel cycle technology, it would be a much easier investment for African countries to obtain nuclear reactor-only technology at this time due to the inherent technical, financial, and political difficulties, such as geopolitical tensions, proliferation risks, and transparency concerns associated with possessing nuclear reactors with fuel-cycle technology.

Small Modular Reactors, which could be more cost-effective than traditional nuclear reactors, do not have fuel cycle models yet, even though they may be under research. So, African countries should instead follow an incremental approach by going for reactors without fuel-cycle technology now (whether traditional large-scale or small modular reactors) and exploring whether they need and are ready for fuel cycle reactors in the future.

Finally, the conventional financing model of direct loans from seller to buyer for nuclear power projects is problematic and constitutes practical challenges for low and middle-income countries seeking to transition to nuclear energy. This is due to the capital-intensive nature of nuclear power projects, which often require a significant upfront investment, and which a seller may not be able to cover fully. This leads to financial strain on the buyer country; the long gestation period of nuclear power projects which means that return on investment may not be immediate and thus could be a hindrance for buyers relying solely on direct loans; and the possibility of sellers' reluctance to provide direct loans for projects if the financial commitment and potential liabilities involved are substantial and not profitable for the seller in return. Furthermore, the "direct loan from seller to buyer model" places a long-term cost burden on buyer countries regarding loan repayment. For some countries in Africa that are currently struggling to pay existing loan debts associated with other economic development initiatives, such a model would only constitute a higher debt burden for these countries.

It is also not impossible for ambitious vendors to compromise on safety standards to reduce costs and present cost-friendly deals to buyer countries due to the growing nuclear market competition in Africa. Because the region does not have any nuclear vendor, and over half of the major global nuclear vendors are entirely State-owned or partly State-owned by non-African countries e.g. CNNC (China), CGN (China), EDF (France), ROSATOM (Russia), KEPCO (South Korea), this breeds an opportunity for superpower rivalry in Africa, which is unhealthy for the region's growth and development. To mitigate these challenges, it is vital that the World Bank, which is the major multilateral development financing institution dedicated to providing financing to reduce poverty and support sustainable development in low and middle-income countries, amends its nuclear energy policy and begins to provide financing, such as grants and low-interest loans, for nuclear energy projects. Besides, if the World Bank makes such a provision, it will benefit not only Africa but all World Bank member countries interested in pursuing nuclear energy.

The peaceful uses of nuclear energy pillar offers a unique opportunity to accelerate Africa's journey towards sustainable development while reinforcing its commitment to the NPT. It is a win-win scenario for NWS and NNWS alike that should be embraced.

Authors

Oliver Meier, ELN Policy and Research Director

Michael Biontino, Former Permanent Representative to the Conference on Disarmament and ELN senior network member

Sanaa Alvira, Marie Sklodowska-Curie fellow at the International Atomic Energy Agency (IAEA)

Shizuka Kuramitsu, Research Assistant at the Arms Control Association (ACA)

Olamide Samuel, Special Envoy of the Executive Secretary of the African Commission on Nuclear Energy (AFCONE) and member of the YGLN

Dr Irmgard Niemeyer, Head of the Nuclear Safeguards and Security Division at Forschungszentrum Jülich

Maren Vieluf, PhD Researcher at the Foreign Policy Lab of the University of Innsbruck and YGLN member

Ananya Agustin Malhotra, Research Fellow at the Quincy Institute for Responsible Statecraft and YGLN member

Ward Wilson, Executive Director of RealistRevolt, former senior fellow at the James Martin Center for Nonproliferation Studies and BASIC

Adam Thomson, Director of the ELN

Paul Ingram, Research affiliate at the University of Cambridge Centre for the Study of Existential Risk (CSER)

Julia Berghofer, ELN Senior Policy Fellow and YGLN Project Manager

Alexander Kmentt, Ambassador, Director for Disarmament, Arms Control and Non-Proliferation at the Austrian Foreign Ministry and ELN senior network member

Pavel Podvig, Russian Nuclear Forces Project

Maximilian Hoell, Postdoctoral research fellow at the Center for Global Security Research and YGLN member

Tarja Cronberg, Former Member of the European Parliament, Distinguished Associate Fellow at SIPRI, and ELN senior network member

Rishi Paul, ELN Senior Policy Fellow

Daniel Ajudeonu, Leadership Team Member of International Student/Young Pugwash and YGLN member

The European Leadership Network (ELN) is an independent, non-partisan, pan-European network of over 450 past, present and future European leaders working to provide practical real-world solutions to political and security challenges.

Published by the European Leadership Network, July 2024.

Published under the Creative Commons Attribution-ShareAlike 4.0

© The ELN 2024

The European Leadership Network itself as an institution holds no formal policy positions. The opinions articulated in these commentaries represent the views of the authors rather than the European Leadership Network or its members. The ELN aims to encourage debates that will help develop Europe's capacity to address the pressing foreign, defence, and security policy challenges of our time, to further its charitable purposes

We operate as a charity registered in England and Wales under Registered Charity Number 1208594.



European Leadership Network
8 St James's Square
London, SE1Y 4JU
United Kingdom

Email: secretariat@europeanleadershipnetwork.org

Tel: 0203 176 2555

Website: europeanleadershipnetwork.org

Follow us    