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How opposing views on nuclear deterrence fracture the non-proliferation regime

Jana Baldus

Competing perceptions of nuclear deterrence are no longer peripheral disagreements within the Nuclear Non-Proliferation Treaty (NPT) – they are driving deep structural divisions that risk paralysing the regime. The failure by states at this year's NPT Preparatory Committee to agree on measures to strengthen the treaty ahead of the 2026 Review Conference was a sobering sign of the divisions fracturing the regime.

Of course, opposing views on nuclear deterrence are not the sole cause of gridlock within the NPT. However, they indicate deeper conflicts about which security strategies states can and should rely upon. For nuclear-weapons states and allies, nuclear deterrence remains a necessary pillar of international security and regional stability. Non-nuclear-weapons states see deterrence as outdated and dangerous, arguing it ultimately increases the risk of nuclear conflict. Reflecting these frictions, debates within the NPT increasingly focus on the legitimacy of extended nuclear deterrence and nuclear sharing arrangements – practices whose compatibility with the treaty's objectives remains deeply contested.

If unaddressed, these fractures risk deepening polarisation within the regime and could significantly undermine efforts to build consensus at the 2026 Review Conference.

To preserve the NPT, states should bridge the deterrence divide by acknowledging divergent security perspectives and addressing legitimate concerns on all sides. All nuclear-weapons states, as well as NATO allies, should articulate the security rationale of nuclear deterrence more clearly, while addressing the double standards their policies imply. Non-nuclear-weapons states should engage with the broader security implications of renouncing practices of nuclear deterrence, as well as the deterrence strategies of Russia and China. Strengthening measures such as codifying Negative Security Assurances (NSA) – guarantees by nuclear-weapons states not to use or threaten to use nuclear weapons against non-nuclear-weapons states – and enhancing regional security frameworks can help reduce reliance on nuclear weapons and revive disarmament commitments.

Geopolitical insecurities feed into polarisation

Today's geopolitical landscape amplifies divergent views on nuclear deterrence, where conflicts and great power rivalries fuel mistrust and hinder bridge-building within the NPT.

Russia's war in Ukraine and the escalating NATO-Russia antagonism cast a long shadow over the non-proliferation regime, fuelling nuclear modernisation and expanding the role of nuclear weapons in military doctrines. Russia's nuclear threats and posturing have heightened anxieties in Europe over possible escalation into nuclear war. In light of fears about Russia's long-term intentions – and concerns over declining US support – discussions about a potential European deterrent or expanded NATO nuclear sharing are seen as logical by many NATO states. Doubts over the US commitment to extended deterrence also fuel debates in South Korea and Japan amid North Korea's expanding nuclear capabilities and China's nuclear build-up.

Shifts in attitude and policies contribute to entrenching opposing positions on nuclear deterrence – especially regarding extended deterrence and nuclear sharing.

These debates heighten concerns among many non-nuclear-weapons states, who fear that such developments increase the salience of nuclear weapons and undermine disarmament efforts.

Together, these shifts in attitude and policies contribute to entrenching opposing positions on nuclear deterrence – especially regarding extended deterrence and nuclear sharing. These divisions extend beyond policy disputes, reflecting deeper fault lines in how states understand security within the context of the NPT.

Competing narratives on nuclear deterrence

Long-standing divisions over nuclear deterrence within the NPT regime most visibly revolve around fundamentally different interpretations of the role and legitimacy of extended deterrence and nuclear sharing. These divides reflect not only political differences, but also clashing security narratives and distrust in the nuclear-weapons states' disarmament commitments.

The P3 states – the United States, United Kingdom, and France – alongside their NATO allies, consistently defend these arrangements as essential to alliance security and fully compatible with the NPT. Their argument: these arrangements have been accepted as a security framework before the NPT was negotiated and are an essential non-proliferation instrument in that they offer positive nuclear security assurances.

Many non-nuclear-weapons states, especially from the Global South, fundamentally oppose these narratives. They argue that nuclear deterrence practices violate the spirit, if not the letter, of the disarmament commitments in the NPT; that nuclear deterrence perpetuates nuclear weapons possession, derails disarmament efforts, and inherently raises the risk of nuclear conflict. Within the context of the Treaty on the Prohibition of Nuclear Weapons (TPNW), states have sought to reframe debates about the security benefits of nuclear deterrence practices. They advocate for an alternative security framework that would highlight the humanitarian consequences and inherent risks of nuclear deterrence.

China has been adept at exploiting such divisions. Increasingly assertive, China portrays extended deterrence as a treat to global stability and the NPT – citing concerns about strategic stability. China uses this narrative strategically to position itself as a "responsible" nuclear-weapons state that takes the security concerns of non-nuclear-weapons states seriously. Russia, too, continues to exploit divisions over nuclear sharing, branding NATO practices as destabilising and hypocritical – a narrative it still promotes, despite, or to deflect from, its own recent deployment of nuclear weapons in Belarus. While clearly hypocritical, Russia's narrative resonates with many non-aligned states frustrated by what they perceive as Western double standards: advocating extended deterrence for themselves while demanding that other states refrain from nuclear weapons.

Can the NPT survive the deterrence divide?The consequences of these fractures affect the regime's core functioning and legitimacy. Rather than fostering genuine dialogue, exchanges within the NPT become increasingly performative, hardening

positions and reinforcing existing blocs. The polarised debate over nuclear deterrence leaves little room for bridge-building or serious engagement on diverging security perceptions or alternative security structures.If these divergent perceptions on nuclear deterrence remain unaddressed, they could prevent consensus-building and weaken the prospects for any agreement at the 2026 Review Conference. The entrenchment of incompatible narratives – nuclear deterrence is either perceived as purely defensive and distinguishable from explicit nuclear threats, or as a menace to security that is always underpinned by implicit threats – risks alienating states and fuelling disillusionment with the treaty.

The increasing salience of nuclear deterrence, embodied by nuclear sharing arrangements, has reinforced scepticism among non-nuclear-weapons states over the state of disarmament and heightened concerns about nuclear risks. The fracture provides strategic leverage to China and Russia, who increasingly capitalise on concerns over NATO's nuclear sharing practices. Without genuine attempts to bridge the divide by acknowledging and seriously engaging with different security perceptions, the NPT could enter the next review cycle even more polarised than before.

More than stagnation is at stake. Avoiding discussions on nuclear deterrence risks reinforcing perceptions of hypocrisy, driving disengagement from non-nuclear-weapons states, and eroding the NPT's credibility as the cornerstone of the multilateral nuclear order.

The road to 2026

Diverging perceptions of nuclear deterrence are not merely rhetorical – they pose a core challenge to the NPT's future. Addressing these conflicting narratives will be essential to success in 2026. This requires meaningful dialogue within the NPT framework on differing security perceptions.

All nuclear-weapons states should take greater responsibility for reducing nuclear risks and addressing the deterrence divide. This includes increasing transparency around their doctrines, engaging more honestly with the double standards inherent in their deterrence postures, and refraining from actions that further elevate the salience of nuclear weapons. Such steps are essential to rebuilding trust across the NPT membership and reaffirming a shared commitment to the treaty's long-term legitimacy.

States reliant on extended nuclear deterrence, particularly NATO members, should reconsider how they articulate the security rationale behind their posture, including why Russian nuclear sharing should be considered more problematic than their own practices. At the same time, they should counter misleading narratives advanced by China and Russia, exposing contradictions and holding both accountable for their practices.

Non-nuclear-weapons states, in turn, should move beyond general objections to NATO nuclear sharing and explicitly address the implications of Russian or Chinese deterrence practices.

Simply singling out NATO nuclear deterrence practices risks reinforcing the impression among NATO states that they are unfairly targeted while Russia and China avoid scrutiny.

The NPT should be revitalised as a forum for addressing these difficult but unavoidable questions. That includes engaging with the security value many states attribute to nuclear deterrence and addressing security perspectives articulated through the TPNW process that have long been ignored within the multilateral discourse. Even if some states reject the premise that nuclear deterrence prevents proliferation in NATO, Japan, or South Korea, they should consider what alternative security assurances could serve that role. Likewise, NATO states should reflect on the growing salience of nuclear deterrence, including debates around independent deterrents or alternative sharing arrangements in Europe. Such debates signal that nuclear weapons are considered valuable and could therefore undermine non-proliferation efforts.

Concrete steps to strengthen alternative security provisions would not only signal that there is still room for progress under Article VI but could also, in the long term, help reduce the perceived need for extended nuclear deterrence. This includes making Negative Security Assurances more robust – since their credibility has faced a serious blow with Russia's threats against Ukraine. Stepping up support for Nuclear-Weapon-Free Zones and a treaty on NSAs would further reinforce these efforts.

Preserving the NPT's credibility requires states to revisit long-held assumptions about nuclear deterrence and reimagine the security architecture underpinning the Treaty. Avoiding debates on nuclear sharing and extended deterrence won't save the regime – it will deepen fractures.

20 August 2025

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The increasing salience of nuclear deterrence, embodied by nuclear sharing arrangements, has reinforced scepticism among non-nuclear-weapons states over the state of disarmament and heightened concerns about nuclear risks.

Nuclear testing: Unwise, unnecessary, and unwelcome

Julia Berghofer

The current debate around a possible resumption of nuclear testing introduces a new level of brinkmanship in today's increasingly fraught geopolitical climate. There is a high risk that the testing moratorium is being weaponised for the sake of great power competition. European states, including nuclear-weapon states, must speak out against nuclear testing, making it clear that it is unwise, unnecessary, and unwelcome.

A fertile ground for Trump's testing comments

Regardless of how unprovoked and irrational the President's comments on Truth Social seemed, unfortunately, there is fertile ground for them. Since 2019, radical voices have been calling for the resumption of US nuclear testing to strengthen deterrence.

Former National Security Advisor Robert O'Brien, as well as the Heritage Foundation and Project 2025, continue to advocate for the United States to abandon the decades-long testing moratorium established by the Comprehensive Nuclear-Test-Ban Treaty (CTBT), despite the harmful implications for both the international community and their own country.

However, there is no need to look to Trump-aligned think tanks for confirmation of this today. Even the Atlantic Council hailed Trump's confusing comments as a "welcome sign that he is no longer easily swayed by Putin's dramatics and recognises the dangers of allowing himself to be intimidated".

Earlier, in 2020, the Washington Post reported on discussions among officials regarding the resumption of nuclear testing. According to the article, this was intended to create leverage for future arms control negotiations with Russia and China.

Recent US concerns over Russia's and China's adherence to "zero-yield" standards

While it is widely acknowledged, including by US officials, that the DPRK is the only country to have conducted nuclear explosive tests this century, the US has previously expressed concerns about other countries adhering to the 'zero-yield' standard for nuclear testing.

US policymakers have been divided over the question of whether other countries adhere to the US zero-yield standard and whether hydronuclear tests that create a very low nuclear yield could be conducted without detection.

These allegations arose during the first term of the Trump administration and were repeated by the Biden administration. The 2019 State Department Compliance Report expressed concern that "the United States, including the Intelligence Community, has assessed that Russia has conducted nuclear weapons tests that have created nuclear yield". The 2022 Compliance Report accused Russia of conducting supercritical nuclear weapons tests and noted uncertainty surrounding activities at the Novaya Zemlya test site. However, the report did not identify any new compliance developments. The same applies to the 2023-25 period.

Concerning China, the 2020 Report expressed concerns about activities at the Lop Nur nuclear weapons testing site, questioning Beijing's commitment to the US zero-yield standard. These concerns were reiterated in the 2022 Report,

but no new issues regarding adherence have been identified in more recent reports.

The military significance of hydro-nuclear test experiments

For decades, US policymakers have been divided over the question of whether other countries adhere to the US zero-yield standard (i.e. only conducting hydrodynamic testing) and whether hydronuclear tests that create a very low nuclear yield could be conducted without detection.

A 2012 report by the National Research Council noted that with regard to the Russian Novaya Zemlya test site that "perhaps an average of six 'non-explosive' nuclear weapon-related experiments are conducted there annually... It is conceivable that at least some of these experiments might have resulted in very low nuclear yields (< 1 ton), which could be completely contained in an explosive test vessel underground".

However, a different question is whether these tests have military value, or whether they are useful only for maintaining the safety of weapons? The 2012 report concludes that they would not help Russia advance its strategic capabilities.

A comprehensive report by Lawrence Livermore National Laboratory about the CTBT, published in 2020, argues in a similar sense that "[in] the debates surrounding the moratorium on nuclear testing, it is asserted that hydro-nuclear testing is relatively unimportant, especially for advanced nuclear states with significant historical testing experience such as the United States or Russia". However, the report continues that, other than the US, whose nuclear weapons maintenance relies on the advanced Stockpile Stewardship Programme, Russia's arsenal could benefit from hydronuclear experiments to extend the life cycle of its weapons.

The authors conclude that it is unclear to what extent China, which lacks Cold War hydronuclear test experience, would benefit from such tests regarding its arsenal modernisation.

How does the US benefit from the testing moratorium?

In general, there seems to be little concern that hydronuclear experiments could become anything other than an additional means of ensuring the safety of weapons and that they would not help countries to develop new capabilities. Therefore, there are clear benefits for the US in protecting the testing moratorium, even if Russia and China have conducted hydronuclear tests.

Perhaps the most obvious reason for the US to uphold the CTBT is that it prevents China from conducting tests. Other than the US (over 1,000 tests) and Soviet Union/Russia (over 700), China has tested less than 50 times. It thus lags behind France and is on par with the number of British nuclear weapons tests. The Chinese data set therefore is much smaller than the vast amounts of data that Washington and Moscow gathered – which is why Beijing would have more to gain from a resumption of explosive testing.

So far, China has not expressed a desire to resume testing. However, it would be surprising if Beijing were not assessing whether and how Chinese interests would be affected if the global testing norm were to erode.

Furthermore, the CTBT is an established component of the global non-proliferation framework. North Korea's actions have demonstrated that there are serious economic and reputational consequences for countries that reject internationally accepted normative frameworks such as the NPT and the CTBT. However, if such norms were to erode – and it is conceivable that a collapse of the CTBT might precede an erosion of the NPT – then debates about nuclear weapons in states such as South Korea and Japan might be reinvigorated. The US has nothing to gain from an increasing number of nuclear weapons possessors worldwide.

It should also be noted that, technically speaking, the US would not benefit from resuming nuclear explosive testing. The Stockpile Stewardship Programme is robust, and the US has already collected enough data through extensive testing. Therefore, the primary reason for testing would be an erroneous interpretation of deterrence, or rather, brinkmanship. However, it is difficult to see how such an irresponsible move would strengthen deterrence, rather than massively increase strategic instability and worsen existing tensions, thereby damaging any long-term prospects for risk reduction and arms control.

It is also likely that President Trump's comments regarding Pakistan's alleged testing will intensify tensions between Islamabad and New Delhi, even if these allegations are false. None of the recent State Department Compliance Reports have raised any concerns regarding Pakistan. But such public allegations can already have a detrimental effect for relations between the two countries.

What European states can do

In light of the irrationality of the US administration, there is little that Europeans can do. However, it would be dangerous and irresponsible for them to remain silent in the current situation. While some states may be more concerned than others, it is important for Europe to speak with one voice on this issue and make it clear that nuclear testing is unwise, unnecessary, and unwelcome.

As the two P5 states that would certainly have no interest in resuming testing, nor in allowing others to do so, France and the UK have a particular responsibility to speak up in the P5 format, at the upcoming NPT Review Conference, and through bilateral channels.

They need to remind the US, but also China and Russia, that nuclear testing comes with immense costs. As Gregory Kulacki wrote in a noteworthy article for the Union of Concerned Scientists, the costs would outweigh "imagined benefits".

They can also emphasise that resuming nuclear testing could prompt other nuclear "newcomers" to follow suit, inevitably increasing geopolitical and regional tensions, as well as posing potential harm to human beings and ecosystems, given that

the risks associated with nuclear testing cannot be adequately contained – after all, nuclear testing scars one's own population.

European leaders should also demand that the US clarifies whether they have new evidence about the testing activities of Russia, China, North Korea and Pakistan. The most recent Compliance Report, published in April 2025, did not mention anything regarding North Korean and Pakistani testing activities.

This is an urgent issue on which the European nuclear weapons states, in particular, should take a clear stance. Trump has paved the way for a highly detrimental development, and Russia will certainly not hesitate to further escalate the situation. The international community must speak out about the dramatic consequences of a possible collapse of the testing moratorium, including the potential demise of the NPT – a conceivable outcome of such a policy shift.

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Using the lessons of Hiroshima and Nagasaki to promote disarmament discourses

Oliver Meier

Grim descriptions of the immense human suffering caused by the US nuclear attacks on Hiroshima and Nagasaki 80 years ago dominate the discourse around their anniversaries. Every year, these attacks are a stark reminder of the existential threat nuclear weapons pose to humanity. The testimonies of survivors and the footage of the hellish aftermath in the two destroyed cities demonstrate vividly the effects of nuclear weapons like no other event.

The lessons seem clear: If two, by today's standards, small nuclear weapons can cause such death and destruction, the consequences of the use of any number of the 12,000 nuclear weapons existing today would be catastrophic. The nuclear attacks on Hiroshima and Nagasaki also demonstrate that any use of nuclear weapons would almost inevitably violate basic principles of international law because it would cause unnecessary suffering, indiscriminately kill civilians and very likely would be considered disproportionate. By today's legal standards, the US nuclear attacks on Japan would be illegal.

Yet, in striking contrast to the ritual of remembrance of the gruesome nuclear bombings on 6 and 9 August 1945, the political discourse around nuclear weapons on most other days of the year has become astoundingly light-hearted and increasingly careless.

Many decision-makers in nuclear-weapons states and those allied with them speak about nuclear weapons no differently than about other weapons. They often exaggerate the security benefits of nuclear weapons, while ignoring or downplaying risks associated with their continued existence. Ethical and legal constraints on the possession and proliferation of these horrific weapons rarely get mentioned when nuclear deterrence is discussed.

Unsurprisingly, authoritarian and populist personalities like Vladimir Putin and Donald Trump speak about nuclear weapons irresponsibly, frequently issue nuclear threats or announce on social media the redeployment of nuclear weapons. After all, populists are primarily concerned about messaging to their domestic base, which thrives on tough talk and nuclear chest-thumping (watch one of the Russian propaganda talk shows for examples), and care less about the effects of their actions on the nuclear order.

From propaganda clips of Kim Jong-Un coolly promenading with his daughter in front of North Korean ICBMs to an Israeli minister casually suggesting dropping "some kind of atomic bomb" on the Gaza Strip, to "kill everyone", the discourse around nuclear weapons has become irresponsibly sloppy.

Loose talk by those who control nuclear weapons can increase escalation risks. As Alexey Arbatov has remarked: "When it comes to nuclear weapons, words are deeds". Strategic messaging around nuclear weapons was once carefully calibrated; today, it is often delivered without a sense check – off the cuff and on social media platforms – where nuance is lost and the potential for misunderstanding increases.

Vice versa, the unwillingness to discuss nuclear escalation

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risks may also raise nuclear dangers. Thus, although US intelligence services in the autumn of 2022 warned that the risk of Russia using nuclear weapons in Ukraine stood at 50 percent, many European decision-makers continued to ignore such risks, out of fear of being accused of being wobbly on supporting Ukraine and giving in to nuclear blackmail. A sober analysis of nuclear dangers in such a polarised debate has become difficult.

But the problem runs deeper and broader. It is not only decision-makers in the nine countries with nuclear weapons that display such behaviour. Politicians in non-nuclear-weapon states allied with nuclear-weapon states often display the same casual attitude when talking about nuclear weapons. It is then probably not surprising that the general public in Europe and elsewhere also views nuclear weapons with less concern. And if the public becomes more hawkish, domestic constraints on nuclear weapons use are loosened.

Non-nuclear-weapon state representatives who nonchalantly praise the assumed security benefits of nuclear weapons for their own countries undermine global efforts to convince countries like Iran to forgo the nuclear option. “Do as I say but not as I do” is not sound policy, particularly in multilateral regimes where the same rules should apply to everybody.

Several factors may account for the drifting apart of serious commemorations and superficial political discourses around nuclear weapons. Since the end of the Cold War, more than a generation of decision-makers has not dealt with nuclear destructiveness in any serious way. Huge knowledge gaps around nuclear risks exist, and constituencies for arms control and disarmament have melted away. Last but not least: the nuclear taboo has held for eighty years, which is a remarkable record of non-use. But this very success has bred complacency. It has created the false impression that nuclear deterrence is stable, even infallible. This illusion, when combined with significant knowledge gaps, undermines the gravity of nuclear decision-making and increases the chances of dangerous miscalculation.

So, what can be done to better connect commemorative and political discourses around nuclear weapons? How can we make sure that the lessons derived from Hiroshima and Nagasaki re-enter political discussions around nuclear weapons in states with nuclear weapons or in nuclear alliances? Three talking points may be helpful.

First, it is important to remind policymakers that nuclear weapons are unique. Eighty years after Hiroshima and Nagasaki, nuclear weapons remain the only category of weapons that pose an existential risk to humanity. True, many non-nuclear weapons technologies have become more lethal and widespread; the potential of biological weapons to indiscriminately kill people has grown immensely. But there is no protection against nuclear weapons; no vaccines or protective suits can help us to survive a nuclear war.

That is why it is vital to increase the distance between the use of conventional weapons and any use of nuclear weapons. Likewise, it is crucial to prevent a mission creep of nuclear weapons and see them as a “one size fits all” solution to deterrence problems.

A nuclear no-first-use doctrine is one step in this direction; further integration of conventional and nuclear warfighting is a step backwards.

Second, it is essential to highlight that luck – not the effectiveness of nuclear deterrence – is the main factor explaining the long period of 80 years of non-use. Advocates of nuclear deterrence are reluctant to give luck the credit it deserves. According to Murphy's law, eventually, luck will run out. This is a conclusion that does not sit well with those who want to perpetuate reliance on nuclear weapons for their own security.

Relatedly, third, as the survivors of the bombings in Hiroshima and Nagasaki remind us: Disarmament remains the only sustainable solution to the wicked problems posed by nuclear weapons. Without steps towards disarmament, the global regime to control the spread of nuclear weapons will become increasingly frail. If the Nuclear Non-proliferation Treaty falls into further disregard and cynicism about its goals wins the upper hand, proliferation will accelerate. As Barack Obama argued in his 2009 Prague speech: "Such fatalism is a deadly adversary, for if we believe that the spread of nuclear weapons is inevitable, then in some way we are admitting to ourselves that the use of nuclear weapons is inevitable."

The memories of the nuclear bombings of Hiroshima and Nagasaki provide opportunities to make such paradigmatic arguments around nuclear weapons: These weapons are inhumane, and their use would violate basic norms of international humanitarian law that the international community has carefully established. Nuclear weapons pose existential risks to humanity, and if we do not seriously engage in efforts to abolish them, it is very unlikely that we will see another 80 years of non-use.

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Can arms control survive this dangerous age of war and rearmament?

Hans Blix

The world has entered a dismaying and volatile period of renewed instability and accelerating risk. There has been no global conflagration for 80 years, yet several regions are now involved in, or at risk of, armed conflicts involving great powers. All governments claim to wish to avoid such conflicts, yet many appear convinced that the best – perhaps only – way to do so is by increasing their armed forces and deterrence capabilities. The world is presently engaged in a massive wave of rearmament, with NATO members, for example, agreeing to devote five percent of their GDP to military spending. Meanwhile, governments fail to find adequate resources to address environmental and climate degradation that threatens the very future of human civilisation.

United Nations member states are also ready to blatantly violate their obligations under the Charter, particularly Article 2(4), to refrain from threatening or using force to violate other states' territorial integrity or political independence without provocation. In perfunctory bows to international law, strained legal arguments are provided as justifications for these breaches. Thus, at the end of February 2026, President Trump declared that his military's bombing of Iran was needed to counter Iranian threats against the US. He was more frank when, in a recent interview, he said that he did not need international law.

Opportunities for arms control

Ongoing conflicts continue to cause untold suffering, while there is widespread concern that a nuclear war could be triggered by a conflagration between great powers – or by the proliferation of nuclear weapons to a greater number of states. In this febrile context, what reductions in current threats and use of arms may be within the realm of political possibility?

Only a total elimination of nuclear weapons will eliminate the risk that they could be fired by accident, in the case of a misunderstanding, or sheer lunacy. The absence of planning for radical nuclear disarmament by nuclear-armed states and the recent lapsing of the New START treaty – with its modest bilateral limitations of US and Russian strategic nuclear weapons – makes a new agreement limiting the arsenals of at least the three major powers of critical priority.

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An important restraint on the use of nuclear weapons nevertheless exists: Mutually Assured Destruction (MAD). Ever since the 1962 Cuban Missile Crisis, the prospect of a devastating second-strike response has created an almost insurmountable barrier – a powerful taboo – against nuclear use between nuclear-armed states, and has strongly discouraged conflicts that could escalate into such confrontations.

Awareness of the risk of second nuclear strikes is unlikely to be blotted out, even by Washington's promised "Golden Dome" antimissile project. As long as a second nuclear strike remains deliverable, the fear of "unacceptable damage" will be a cause of restraint. And, as France – with a nuclear arsenal numbering only in the hundreds – is convinced, it does not matter much whether the threat comes from a stock of 200 or 2,000 nuclear

weapons. Nor should it matter to non-nuclear armed states, for example in Europe, whether second-strike protection comes from a larger or more modest nuclear deterrent, such as France rather than the US, so long as the capability to deliver it remains credible.

MAD remains a fundamental assuring element. I argued a few years ago that "restraints against decisions on the first use of nuclear weapons have become so strong that… an actual governmental decision on [such] use… has become impossible, if not inconceivable". Today, I might add restraints prompted by fears of catastrophic consequences that could follow from new means of warfare, such as cyber and space war.

Recent offensives demonstrate that when high-priority objectives are deemed attainable, and the risks of clashes with other great powers are deemed low, restraint on conventional arms is abandoned in pursuit of national self-interest (Russia in Georgia and Crimea, the US in Iran and Venezuela).

We also see moves towards non-kinetic means of warfare. An absence of ambition or ability to design new measures to prevent warfare necessitates greater use of traditional methods of deconfliction: restraint in arms deployment, nuclear fail-safe mechanisms, increased transparency, open communications, and hotlines.

The world under Trump 2.0

Central to speculation about arms control measures that may be possible in the near future is the mindset of President Trump. He is evidently anxious to respond to broad US public opinion against "forever wars" and is driven by an eagerness to intervene to terminate conflicts in Western Sahara, Armenia/Azerbaijan, Cambodia, as well as in Gaza and Ukraine. Yet this posture has been undermined by the recent US-Israeli assault on Iran, which sits uneasily with such claims. It may have been more than a populist punchline when he expressed dismay at the wasting of resources on armaments and general sympathy for the idea of fewer nuclear weapons.

Considering President Trump's habitual dislike of agreements made by his predecessors, the chance of some sequel to New START appears slim. The difficulties of reaching understandings in substance among three rather than two great powers are formidable, yet perhaps not wholly unattainable, given the volatile political climate and the sporadic dialogue among the power-conscious three leaders.

Regrettably, it is unlikely that the great powers' awareness of their own ever-growing ability to destroy one another will lead them to agree on new, far-reaching regulatory restrictions or institutional reforms. Even though President Trump is eager to be celebrated as the peace-maker of the world it appears unlikely that he will seek to rally his peer presidents to a conversation à trois based on a common conclusion that armed conflicts involving their countries have become too dangerous, and that they must jointly embark on disarmament and a drastic upgrading of common instruments for the maintenance of peace. The so-called "Board of Peace" recently created by the US government is nothing more than an amateurish, unilateral sketch.

An agenda could be made somewhat less difficult if, rather than aiming for a full formal treaty, it sought to define, more modestly, parallel unilateral pledges on nuclear arms restrictions. A precedent exists in the very successful Presidential Nuclear Initiative concluded by Presidents Gorbachev and Bush in 1991 to eliminate tactical nuclear weapons.

Addressing proliferation risks

Today, we must note not only the global anguish linked to the thousands of ready nuclear weapons in nine states but also increasing fears of a spread of nuclear weapons to more countries. One reason for these fears has been that in several countries – South Korea, Japan, Poland, Sweden – arguments have appeared that nuclear weapons under national control are needed, as the new America First policies have reduced the reliability of the US nuclear umbrella (extended deterrence) that they came to rely on. More likely is a continuation of discussions of how France's nuclear deterrent force could be extended to serve all EU states – say, through a declaration that any threat or use of nuclear weapons against an EU member or candidate would be regarded as a threat or attack against France itself.

Neither economic sanctions nor incentives – such as the provision of nuclear reactors under the 1994 Agreed Framework, or President Trump's suspension of US military exercises – have persuaded North Korea to slow or abandon its nuclear weapons programme. With the country's present dependence on and support from China and Russia, it remains firmly in their grip, and the situation appears tense but static. US permission for South Korea to build a nuclear-powered submarine (without allowing enrichment capacity) will perhaps boost morale in the country and vex Beijing, but will hardly alter the strategic situation.

What's more, support among the non-nuclear armed parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) has been waning. A major reason is their perception that the nuclear-armed parties have failed in their obligation to move to nuclear disarmament. Although no nuclear weapons tests have been conducted since 2017, the failure of China and the US to ratify the Comprehensive Nuclear-Test-Ban Treaty (CTBT), adopted in 1999, has been particularly resented, as it has prevented the treaty from entering into force. While China and the US may feel a need to develop and test new means of delivering their nuclear weapons, it is unlikely that further development and testing of nuclear warheads is necessary.

Regrettably, it is unlikely that the great powers' awareness of their own ever-growing ability to destroy one another will lead them to agree on new, far-reaching regulatory restrictions or institutional reforms.

President Trump could place a feather in his peace cap if he declared that he is ready to bring about US ratification of the CTBT, provided that the other states whose ratifications are needed – including China and North Korea – also ratify it. A somewhat less spectacular step would be to promise an American commitment to no testing, so long as all other states do the same.

The Middle East crisis and its impact on global arms control

The gravest concerns about proliferation have long been and remain those emanating from the Middle East, notably Iran, whose ambitious nuclear programme has worried not only Israel but also

Arab states. The most ambitious approach – a comprehensive Middle East nuclear-weapon-free zone – is an attractive dream. But it is one that remains elusive as Israel will surely never exchange the security provided by nuclear arms under its own command with its neighbours' pledges to stay away from acquiring them.

A more modest approach had success in 2015 when a deal endorsed by the UN Security Council (the JCPOA) ensured that Iran's nuclear programme would be subject to intrusive inspection and tailored to sustain only peaceful use. The Israeli government was extremely dissatisfied with the deal, and it was successfully operated until 2018, when the first Trump administration singlehandedly breached it, imposed new economic sanctions, and urged others to follow its lead.

In the spring and summer of 2025, talks between the second Trump administration and Iran were pursued in Oman and Rome, but they could not bridge the US demand that Iran should forego all enrichment of uranium with Iran's insistence on continued limited enrichment for peaceful uses. The talks were interrupted by the Israeli armed attack on 13 June 2025, with the US joining them in heavy bombings, which potentially destroyed Iranian facilities for enrichment. Remarkably, indirect talks were resumed between the US and Iran in 2026, and equally remarkably, these were again interrupted by extensive joint Israeli-US bombings. These attacks have led inter alia to the killing of Iran's leader, Ayatollah Khamenei. Various US statements suggest that the objectives included the toppling of Iran's theocratic regime and generally reducing the country's military capacity, notably to erase its missile capacity and nuclear programme. At the time of writing, hostilities have been paused following the announcement of a fragile ceasefire.

One must conclude that the US has joined Israel in that country's long-standing practice of ignoring the UN Charter and pursuing preventive warfare – seen in the bombing of the Iraqi research reactor in 1981, the strike on a nuclear installation at Al Kibar in Syria in 2007, and the sabotage of Iranian centrifuges through the "Stuxnet" cyber operation in 2010.

Another sad reflection is that efforts to reduce the risk of nuclear proliferation through preventive military intervention risk strengthening incentives for further proliferation. More constructive action would lie in diplomacy aimed at reviving an agreement building on the 2015 nuclear deal and relevant UN Security Council resolutions. In the longer term, meaningful assurances against nuclear proliferation in the Middle East will require genuine movement toward – not merely rhetoric about – a two-state solution for Israel and Palestine.

10 April 2026

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Stepping back from the brink: How the UK could help lead the world away from the nuclear precipice

Steve Barwick

For decades, restraint regarding the use of nuclear weapons was maintained by the "nuclear taboo" – a shared global understanding that nuclear weapons are not legitimate tools of warfare. That taboo is eroding.

The world today stands closer to nuclear catastrophe than at any point since the end of the Cold War. Conflicts involving nuclear-armed states (the United States, Russia, the United Kingdom, France, China, India, Pakistan, North Korea and Israel) in Europe, the Middle East and South Asia, alongside rising tensions in East Asia, could all too easily escalate to a nuclear confrontation. Meanwhile, key arms control treaties have collapsed, and most nuclear powers, including the UK, are modernising their nuclear arsenals. Against this perilous backdrop, what could the UK do to help lead the world back from the brink?should it matter to non-nuclear armed states, for example in Europe, whether second-strike protection comes from a larger or more modest nuclear deterrent, such as France rather than the US, so long as the capability to deliver it remains credible.

The myths of tactical nuclear weapons and limited nuclear war

So-called "tactical" nuclear weapons (TNWs) are ones deployed to arenas of conflict or tension, such as those Russia has deployed to Belarus, and those the US has sited across five European NATO member states, with the UK, as of July 2025, reportedly now the sixth. Whilst these weapons can have relatively low explosive yields, the impact of their use would be anything but small. For example, the US B61-12 bombs can deliver explosive yields of up to 50 kilotons. This is several times more powerful than the atomic bombs dropped on Hiroshima and Nagasaki.

Any use of nuclear weapons, at whatever scale or size, would likely have very severe military as well as humanitarian and environmental consequences. Even a single detonation involving a relatively low-yield nuclear bomb could trigger uncontrollable escalation. National leaders faced with the ensuing chaos and fear of a completely new type of crisis would have no reliable way to contain events.

The fraying of the nuclear taboo

For decades, restraint regarding the use of nuclear weapons was maintained by the "nuclear taboo" – a shared global understanding that nuclear weapons are not legitimate tools of warfare. That taboo is eroding. For example, President Vladimir Putin's threats to use nuclear weapons during the Russia-Ukraine war reintroduced nuclear brinkmanship into mainstream political discourse.

Russia's actions are widely condemned, but only China has made a commitment never to use nuclear weapons first. The nuclear doctrines of the US, UK, France, Russia, Israel, North Korea, India and Pakistan all allow for first use under certain conditions. This collective ambiguity increases the risk of miscalculation and normalises threatening nuclear rhetoric.

A dangerous drift: Eroding treaties, escalating tensions

The collapse of key nuclear arms control agreements between the US and Russia – notably the Intermediate-Range Nuclear

Forces (INF) Treaty in 2019 — has removed a vital guardrail that had at least banned ground-based "tactical" missiles with ranges between 500 and 5,500 km, such as the Cruise and SS20 Missiles. However, it is important to note that "battlefield" nuclear weapons were never banned.

Recently, Moscow and Washington have developed new tactical nuclear weapons. Russia has tested its Burevestnik cruise missile, while the United States has fielded the W76-2 warhead on ballistic missile submarines. President Donald Trump also recently commented that the US will resume nuclear testing. China's nuclear rearmament programme remains opaque, fuelling uncertainty and mistrust.

Learning from history

History offers important lessons on how these dangerous trends can be reversed. The Cuban Missile Crisis, the moment where the world came closest to nuclear war, demonstrated that diplomacy and mutual understanding – not military brinkmanship – are the only reliable paths to peace.

During the Cold War, the deployment of thousands of nuclear weapons in Europe brought humanity perilously close to disaster and also ignited a powerful civil society movement that demanded a different course: nuclear disarmament. The subsequent agreement of the INF Treaty in 1987, which eliminated a whole class of nuclear weapons and set the stage for several multilateral arms control and confidence and security-building measures, was a landmark achievement.

Rebuilding cooperation on nuclear arms control and disarmament

Now is the time for Russia to agree to a ceasefire and take part in good-faith negotiations to end the war in Ukraine, alongside all key participants in the conflict. In addition, Russia and the US should refrain from deploying TNWs and instead negotiate a legally binding treaty to eliminate them.

The nuclear powers should also:

- Reaffirm the nuclear taboo through joint declarations rejecting nuclear warfighting;
- Commit to follow international law regarding the threat or use of force;
- Renew and strengthen arms control and disarmament agreements, such as the New START Treaty, or at least maintain its limits after expiration;
- Address the root causes of conflict, such as territorial disputes and economic inequality, including through sustained diplomacy.

These are challenging steps, but there is no other path to rebuilding stability. Even in the Cold War's darkest moments, dialogue, arms-control mechanisms and crisis communication channels helped avert catastrophe. This way forward must not be lost in the fog of war preparations.

The UK's role: From nuclear proliferator to peace broker

As Chair of the group of five 'official' nuclear-weapon states in the run-up to the 2026 Nuclear Non-Proliferation Treaty Review Conference, the UK occupies a unique position, both as a nuclear possessor and a potential bridge between the superpowers and non-nuclear-weapon states. Yet current British policy jeopardises that potentially positive role. There are four practical measures the UK should take to support strategic stability and demonstrate global leadership:

1. Reject nuclear sharing and prioritise transparency. The UK should not join NATO's nuclear sharing arrangement, and thus not acquire F-35A aircraft or host US B61-12 bombs. Parliamentary and civil society scrutiny of nuclear deployments and procurement must increase through Select Committee inquiries and more mainstream media interest.

2. Reinvigorate global diplomacy. The UK should support high-level diplomacy among the nuclear powers to revive dialogue on arms control, disarmament and conflict prevention. As chair of the P5 process, the UK should urge that crisis stability between the major powers and the avoidance of arms races are prioritised.

3. Adopt a no-first-use policy. A commitment never to use nuclear weapons first would reduce escalation risks. Coupled with assurances not to threaten or use nuclear weapons against non-nuclear-weapon states, this stance would align the UK with NPT agreements to reduce the salience of nuclear weapons and encourage reciprocal restraint from others.

4. Engage with the Treaty on the Prohibition of Nuclear Weapons (TPNW). It is time that the eyes of the world are reopened to the devastating effects of nuclear weapons. The UK should support the United Nations panel examining "the physical effects and societal consequences of a nuclear war on a local, regional and planetary scale"; and attend TPNW meetings as an observer, demonstrating concern and an openness to dialogue.

2026: A pivotal year

The year 2026 will be critical. It marks both the scheduled expiry of New START and the next NPT Review Conference. The message is unambiguous: continuing along the path of rearmament and confrontation invites catastrophe. The UK, as one of NATO's more influential members, has a rare opportunity to steer policy toward restraint and away from the futile pursuit of "nuclear advantage." To seize it, Britain must make bold choices – reject nuclear sharing, embrace transparency, champion diplomacy, and reaffirm the principle that nuclear weapons must never be used.

25 November 2025

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Life without the New START Treaty: What nuclear weapons states can do to help strengthen the non-proliferation regime

Edward Ifft

[The] half-century process of reducing the number of nuclear weapons in the world is about to be reversed, with increases in all three leading nuclear weapons states. This will likely be a major topic at the NPT Review Conference this April.

At midnight on 4 February 2026, the New START Treaty, the last treaty constraining the nuclear weapons and their delivery systems of the United States and the Russian Federation, expired.

It had been extended for five years in 2021 by Presidents Biden and Putin and could not be extended further. Although the two sides thus had five years to address this situation, they failed to do so, and there is little evidence that they made much of an effort. In September 2025, President Putin did propose that the two sides agree to observe the three central limits of New START for an additional year, while working toward a follow-on agreement. As far as we know, the US did not even issue an official response to this offer, although White House press secretary Karoline Leavitt said Putin's proposal sounded "pretty good".

The New START Treaty was the culmination of over 50 years of successful negotiations between the US and the USSR/Russia constraining and reducing nuclear weapons. It reduced the number of deployed strategic nuclear weapons and their delivery systems – Intercontinental Ballistic Missiles (ICBMs), Submarine-Launched Ballistic Missiles (SLBMs) and heavy bombers – to their lowest levels since the 1960s. It also contained a remarkable and highly intrusive verification regime, which contains valuable lessons for the future.

The importance of verification

The New START verification regime relied heavily on On-Site Inspections (OSI) and a massive data exchange. Up to 18 OSI of declared facilities per year were conducted by each side. Data required to be exchanged periodically by the sides would fill about 100 pages. Some of this information was exchanged almost daily, with a complete set exchanged every six months. The channels used were at the National and Nuclear Risk Reduction Center (NNRRC) at the State Department in Washington and the Nuclear Risk Reduction Center (NRRC) at the Ministry of Defence in Moscow.

Nearly all of this massive amount of data, approximately 2,000 notifications per year, was handled as classified. Additional relevant data was provided to OSI teams at the inspection sites. All this has now been lost. The sides also have their own National Technical Means (NTM) – e.g., satellites – as sources of relevant information. The loss of the treaty means that we have also lost the prohibition on interfering with the NTM of the other Party operating in a "manner consistent with generally recognized principles of international law."

Taken together, these verification elements were designed to provide the sides with a near-real-time picture of the status of the other side's strategic nuclear forces. Both sides consider that all these monitoring arrangements were highly successful. We need to preserve this and build upon it in new agreements.

New issues

By mutual agreement, OSI was interrupted by COVID-19 in 2020. Then, when the US was ready to resume in 2022, Russia refused. In 2023. Russia then also declined to continue the

required exchange of data, citing the war in Ukraine as the reason. Although NTM is effective at monitoring ICBM silos, submarines and heavy bombers, the ability to monitor deployed warheads is deteriorating without OSI. Both sides have a few other unresolved New START issues, but consider the Treaty to have been generally successful in achieving its goals.

Any new agreement will need to revive this or a similar verification regime. In addition, several new issues need to be addressed. Both sides would like to expand the scope of any new agreement, but in different ways. Even who the negotiating parties should be is controversial. The US insists on adding China, while Russia believes the UK and France should be at the table. Another huge issue will almost certainly be the proper role of strategic defences – in particular, Trump's Golden Dome, which would overturn decades of deterrence theory and practice. These issues have been discussed by the author and others elsewhere. During negotiation of new agreements, the sides could exercise restraint and could even exchange some data of the sort called for in New START. This would help to avoid uncertainties and worst-case planning.

An increase in deployed warheads could be an early result of the Treaty's demise. Russia can do this by using the potential of its existing missiles and those in development to carry additional warheads. The US can do it by simply redeploying warheads it removed from Minuteman III ICBMs and Trident SLBMs to meet New START limits. It is believed that the US could, in this way, achieve greater increases in deployed warheads than Russia. The UK has increased the maximum size of its nuclear weapon stockpile to 260.

Constructive measures nuclear weapons states can take

We face the prospect that the half-century process of reducing the number of nuclear weapons in the world is about to be reversed, with increases in all three leading nuclear-weapons states (NWS). This will likely be a major topic at the NPT Review Conference (RevCon), starting this April in New York, under the leadership of President-designate Ambassador Do Hung Viet of Vietnam.

Russia is likely to blame the US for this situation, noting that it was willing to observe a one-year freeze on these numbers while negotiating a more comprehensive agreement, but the US refused. The US will likely blame China, in view of the latter's rapid buildup, while refusing to join nuclear arms control negotiations. China is likely to blame both the other two, highlighting their far larger stockpiles and urging them to adopt a No First Use pledge. The majority of countries at the RevCon are unlikely to be convinced by this blame game and demand urgent action to fulfil Article VI of the NPT. Some may even conclude that their security in the current situation requires that they begin to develop their own nuclear weapons. This could be a disaster for the non-proliferation regime and undermine global stability.

Although this situation appears bleak, there are constructive measures the NWS could take:

- The US, Russia, and China, or, more realistically, the US and Russia, should begin urgent negotiations to develop a new

- The P5 should begin to play a greater role in nuclear arms control. Although the UK and France can claim they are already at minimum deterrence levels, they do have substantial nuclear expertise that could help address these issues.

- All states with nuclear weapons should become more transparent about their nuclear weapon programmes. In particular, we need to develop a baseline of the world's stockpile of nuclear weapons, which we will need if we begin serious further reductions in those numbers.

- Countries should resume, individually and cooperatively, work on the verification measures needed to verify the process of eliminating nuclear weapons. This should build on the good progress made under the Trilateral Initiative among the US, Russia, and the International Atomic Energy Agency (IAEA) years ago, as well as on the recent work by other states.

- Efforts should be made to repair the damage done by the loss of the INF Treaty. In particular, measures should be developed to limit or prohibit the deployment of nuclear-armed ballistic and cruise missiles of specified ranges in the European theatre.

Most countries, including NATO members and the Global South, probably wish the US had accepted the Russian offer to continue to abide by the New START central limits and at least attempted to resume exchanging some New START data. These countries look to 2026 with significant trepidation but have little influence. We can hope for some restraint, and this new situation need not lead to a nuclear arms race, but an increase in deployed nuclear weapons appears inevitable.

In a statement on 6 February 2026, Secretary of State Rubio appeared to slam the door on further bilateral agreements with Russia, stating that "President Trump has been clear, consistent, and unequivocal that future arms control must address not one, but both nuclear peer arsenals" and that "arms control can no longer be a bilateral issue between the United States and Russia." New agreements to resume constraints on nuclear weapons and their delivery systems are essential, but will be difficult to negotiate. If the US refuses to negotiate with Russia, and China refuses to negotiate with the US, the future of nuclear arms control looks bleak indeed.

17 February 2026

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Containing the non-proliferation damage from Israel's attacks on Iran's nuclear programme

Oliver Meier

Those countries still believing in multilateralism as the best way to reduce nuclear weapons must act quickly, coherently, and decisively to try to contain the damage of Israel's attack on non-proliferation measures.

On Friday, 13 June Israel launched a surprise attack on nuclear facilities and missile sites across Iran. This has been followed by escalating strikes between the two countries in the days that have followed.

Israel's unprovoked and illegal attack on Iran is an unmitigated catastrophe for global efforts to contain the spread of nuclear weapons. The attack, though sold as a counterproliferation measure, is also increasing the likelihood that Iran itself will leave the Nuclear Non-Proliferation Treaty (NPT) and become the world's 10th state possessing nuclear weapons.

To avoid such a scenario, or at least reduce the negative implications for non-proliferation, those states believing in international law and global efforts to reduce nuclear dangers must call out Israel for its violations of international law and reject the idea that nuclear dangers can be sustainably reduced through the use of military force against possible proliferators.

Europeans, in particular, can and should steer discussions around Israel's attack in a way that protects multilateral non-proliferation instruments. They must come down from the fence from which they have been observing the conflict and engage on the side of diplomacy and international law.

Nuclear diplomacy with Iran

Israel's attack on Iranian nuclear facilities and civilian infrastructure came days ahead of another round of talks between Tehran and Washington, aimed at resolving or at least freezing the dispute over Iran's nuclear programme.

The assault has shattered hopes that diplomacy could provide a way out of the escalatory circle that Iran and the remaining Western parties to the 2015 Joint Comprehensive Plan of Action (JCPOA) found themselves in, following Donald Trump's 2018 decision that the United States would stop complying with the agreement and UN Security Council resolution 2231 that made the accord binding.

Since 2019, Iran has successively shed JCPOA obligations, at least initially, in an attempt to create leverage vis-à-vis the remaining parties. This policy has brought Iran closer to the nuclear weapons threshold, and some believed that Iran was merely playing for time, waiting for major JCPOA restrictions to expire in October this year in order to then go for a nuclear weapon. Whatever one's analysis of Iranian safeguards violations, at the time of Israel's strike, diplomatic options had not been exhausted.

While France, Germany, and the UK were still talking to Iran even after Donald Trump's return to the White House in January, Europeans had generally sidelined themselves, unable to speak clearly about violations of international humanitarian law in Israel's military actions in Gaza and paralysed by the contradictory messages being sent by members of the Trump administration. Against such a background, European statements that they remain ready to facilitate talks with Iran sound naïve at best.

More worrying and damaging to European credibility is the acceptance of Israel's line that the attack on Iran was an act of self-defence. Despite the IAEA declaring on 12 June that Iran was in breach of its safeguards obligations, the IAEA found no indication prior to the attack that Iran had revived its long-dormant military nuclear programme. IAEA inspectors remained on the ground – and have to be praised for their courage to continue to monitor Iranian nuclear activities even as Israel's bombs started falling. Even Donald Trump's intelligence agencies were not convinced of the Israeli argument that Israel had resumed military nuclear research and reached a point of no return. In any case, Israel soon made clear that its strikes are not only about setting back Iran's nuclear efforts but also about facilitating the fall of Iran's government. The US President soon chimed in, calling for Iran's "unconditional surrender".

Counterproliferation is counterproductive

From a non-proliferation perspective, Israel's attacks are counterproductive, even if both sides find an off-ramp to the current hostilities. Although much of Iran's nuclear infrastructure will be destroyed, the whereabouts of those critical components that Israel has not destroyed will be difficult to trace. Under such circumstances, establishing a baseline of Iranian nuclear capabilities will be difficult, if not impossible. Even in the extremely unlikely case that this or a future Iranian government agrees to US and Israeli demands for zero-enrichment, monitoring compliance with such a concession would be more challenging.

Of course, the longer the war rages and the more destruction Israel (and possibly the US) wreaks on Iranian nuclear and civilian infrastructure, the more likely it will become that Tehran concludes that it has nothing left to lose. Iran would move towards NPT withdrawal and reviving its military nuclear programme, which it had not done prior to the 13 June attacks. On Monday, the Iranian Parliament started debating a bill that could force the government to initiate a withdrawal from the NPT.

Counterproliferation, that is, the use of force to prevent a state from going nuclear, is generally counterproductive. Of the nine cases where military force was used in order to stop a nuclear programme, including Allied attacks on German nuclear infrastructure during World War II and Iranian and US attacks on Iraqi nuclear facilities in the 1980s and 1990s, only one can be successful in the sense of stopping nuclear ambitions (the 2008 Israeli attack on the Al-Kibar nuclear reactor in Syria). Generally speaking, military force will only stiffen resistance and lead to programmes to go underground, as happened after the Israeli attack on the Osirak nuclear reactor in Iraq.

Furthermore, it is to be feared that other would-be-proliferators would draw the lesson that reducing transparency is a safer option when it comes to conducting nuclear activities. After all, the continued presence of IAEA inspectors did not protect Iran from Israel's strikes.

Implications for the NPT

To be sure, Israel's attack will cause plenty of serious collateral damage to the NPT. An Iranian withdrawal could lead others in the

region to reconsider their membership, too. The United States has traditionally invested much political capital in reining in such ambitions. But under Donald Trump, Washington will likely view such proliferation through the narrow lens of "what is in it for me?"

From a treaty perspective, it is troubling that double standards, already implicit in many Western countries' policies towards Israel, will be on open display. This was an attack by a state that has never signed on to the NPT, developed nuclear weapons while maintaining a posture of "nuclear opacity" that allowed its partners in the West to turn a blind eye. The German chancellor's declaration of "respect" for the attack, arguing that Israel has done "the dirty work for all of us", is a bad omen, signalling that Western governments are ready to endorse a "might makes right" attitude.

Many NPT states, particularly from the Middle East, may no longer be willing to tolerate such duplicity, even if they are no friends of Iran. The future of talks on a Zone free of Nuclear Weapons, which has been the key arena to voice such misgivings, is more than uncertain.

Should Iran go nuclear, it is likely to be willing to test its nuclear capability, putting further pressure on the Comprehensive Nuclear-Test-Ban Treaty. Efforts to better protect civil nuclear facilities in war and conflict, which have been highlighted by IAEA DG Rafael Grossi, have also taken a further hit. Russia may also be tempted to supply Iran with new and novel nuclear technologies, shattering whatever was left of international unity on using export controls to stem nuclear proliferation.

What multilateralists should do

This list of negative developments for the NPT and global efforts to tackle nuclear dangers can easily be extended. But the point is clear: Less than a year before the next NPT Review Conference, those countries still believing in multilateralism as the best way to reduce nuclear weapons must act quickly, coherently, and decisively to try to contain the damage of Israel's attack on non-proliferation measures.

First, it is important to be upfront about where those supporting multilateralism stand in this war. Europeans may look back 22 years. In 2003, many from "old Europe" spoke out against false US accusations against Iraq and then, against the background of US resistance against diplomacy, engaged Tehran in an effort that led eventually to the JCPOA. Diplomacy can work.

While Europeans have failed to warn Israel against its illegal attack publicly, it may not be too late to explain to Washington that they would not support the US in any regional war triggered by Israel's attack.

States in favour of multilateralism need to be clear on whether they view nuclear weapons as an asset or a liability.

Second, those Europeans and other states willing to stand up for international law should be ready to take risks in outlining off-ramps for the parties involved. In the wake of the war in Gaza, Europe's credibility and influence in the region are at a low point. But Europeans in particular could still leverage their political and military support for Israel and attempt to offer Iran the prospect of economic engagement.

Third, states in favour of multilateralism need to be clear on whether they view nuclear weapons as an asset or a liability. From the perspective of decision-makers in Tehran, it must seem absurd that Europeans are demanding that Iran dismantle its nuclear programme while at the same time European officials openly speculate about European nuclear options and thinktankers praise nuclear latency as a good option for European non-nuclear-weapon states.

Fourth, Europeans must take the lead in hardening and protecting non-proliferation institutions. These regimes already suffer from Russia's sustained onslaught against multilateralism. Through a mix of deft diplomacy, naming and shaming, and clever moves to isolate Moscow, Europeans have been able to protect these arrangements more or less up to now. It is not at all clear that the same mix of policies will be sufficient to harden these institutions against the Trump administration's attacks against them. Israel's attacks have complicated that difficult task further.

The strength of international norms and regulations depends on compliance with them. But norm robustness crucially also depends on how others react to violations. Thus, a new coalition for multilateralism is needed to protect international non-proliferation norms against violations, regardless of who commits them. Europeans can bring unparalleled political, economic, and military clout to the table to support such an endeavour. Israel's attack on Iran is threatening global non-proliferation norms, putting Europe's commitment to multilateralism and protecting the NPT to a real test.

18 June 2025

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The militarisation of non-proliferation: Will the NPT survive?

Tarja Cronberg

Iran is facing the North Korean choice, the outcome of which is still open.

The Israeli-US bombing of Iran's nuclear facilities raises a number of questions about the nuclear order and how nuclear non-proliferation is managed in today's world. This is particularly pertinent in the Middle East, where proliferation risks have existed in the past and will remain in the future. What means are available to strengthen non-proliferation in the region, and what role can the NPT take?

The NPT defines five states as nuclear-weapons states – China, France, Russia, the UK, and the US. The rest of the signatories, around 180 states, have agreed to abstain from nuclear weapons and are today non-nuclear. Four states, India, Israel, North Korea, and Pakistan, have stayed outside the treaty and have developed nuclear weapons.

The dynamics of the Middle East do not promote regionwide cooperation, and the region's security architecture is based on domination from the outside, resulting in a lack of regional identity and intense competition. This is also the case in relation to the nuclear non-proliferation regime. In the past, there have been different approaches to strengthening and enforcing non-proliferation in the region, each with different implications for the NPT, the cornerstone of the nuclear order. These include a regional nuclear weapon-free zone, negotiations for a peaceful nuclear program, and the destruction of nuclear facilities.

The Middle East as a Nuclear Weapon-Free Zone

Establishing Nuclear Weapon-Free Zones (NWFZ) is a regional approach to strengthening global nuclear non-proliferation and disarmament norms. The NPT explicitly endorses this and has since been confirmed at numerous NPT meetings.

A nuclear weapon (and other WMD) free zone in the Middle East has been underway for 50 years. It was proposed in 1974 by Iran and Egypt and subsequently endorsed by the United Nations General Assembly (UNGA) in a resolution. From 1980 to 2018, similar resolutions were passed annually without a vote by the UNGA. The UN Security Council also endorsed the establishment of such a zone. In 1990, the resolution was broadened to include other weapons of mass destruction (WMD), and the zone was named MEWMDFZ (Middle East WMD-free zone) thereafter.

In 1995, the zone became part of an agreed package intended to transform the NPT into a permanent treaty. The resolution on the Middle East called upon all states in the Middle East – and the NPT-depositaries Russia, the UK, and the US – to take practical steps towards the establishment of an effectively verifiable Middle East zone free of WMD and their delivery systems.

Despite the 1995 resolution, there has been no real progress in establishing the MEWMDFZ. Therefore, in 2010, the NPT Review Conference called for a conference "to be attended by all States of the Middle East, on the establishment of a Middle East zone free of nuclear weapons and all other weapons of mass destruction...".

This led to attempts to convene a conference in 2012. However, despite several consultative meetings, the US formally cancelled the conference in November 2012, given that Israel was unwilling to attend.

In 2013, a number of states in the region sent letters supporting the zone to the Secretary-General of UNODA. At the 2015 NPT Review Conference, Egypt proposed a conference on the MEWMDFZ, suggesting that all states willing to participate could attend, but the proposal was rejected. In 2018, the UNGA decided to hold yearly conferences to establish a Middle East WMD-free zone until this became a reality.

Negotiating with the "Axis of Evil"

In 2002, US President George W. Bush categorised three states – Iraq, North Korea, and Iran – as the "Axis of Evil". All have been accused of either developing or intending to develop nuclear weapons. In Iraq, these accusations and claims resulted in a US military intervention, which found no traces of a weapons of mass destruction (WMD) programme. This military intervention created a reaction in North Korea as it feared it would meet the same fate. North Korea withdrew from the NPT and tested for nuclear weapons in 2006. Now Iran is facing the North Korean choice, the outcome of which is still open.

Iran developed a clandestine nuclear programme before 2003. In 2003, the EU initiated the first negotiations that led to Iran's voluntary suspension of uranium enrichment. In 2005, the US joined the talks, hoping these would fail. This shifted the blame to Iran and made it possible to take the matter to the Security Council and impose a series of UN sanctions.

Suspension of uranium enrichment has been the red thread in negotiations, as Iran claims its right, according to the NPT, to enrich uranium for peaceful purposes. When the US opened up to the idea of small-scale enrichment by Iran, the JCPOA was negotiated in cooperation with the EU and signed in 2015. Iran would remain a non-nuclear state, apply strict verification requirements, and, in return, receive some sanctions relief. As the IAEA gave its blessing, the agreement was recognised as a prime example of non-proliferation restrictions under the NPT.

In May 2018, US President Trump withdrew from the agreement. Iran followed the JCPOA restrictions during a year of "strategic patience", hoping the EU could repair the situation. Re-negotiation of the deal was expected to occur during the Biden administration, but aside from a few contacts and initiatives, there was no progress.

In his new term, President Trump restarted negotiations, premised on the idea that Iran could potentially continue some enrichment while securing that Iran would not get nuclear weapons. This position was later changed to no enrichment, which Iran strongly opposed. The renewed discussions included innovative new ideas, such as creating a consortium with neighbouring states, such as Saudi Arabia and the UAE, that could ensure regionally that Iran was not building nuclear weapons.

Bombs for non-proliferation

On 13 June 2025, in the middle of these US-Iran negotiations, Israel attacked Iran by bombing its nuclear sites and killing selected military leaders and nuclear scientists. A few days later, the US joined the war effort to guarantee the destruction of facilities and machinery.

This was not the first time Israel opted for military methods to prevent proliferation in the Middle East. In 1981, Israel bombed Iraq´s nuclear research reactor under construction at Osirak, southeast of Baghdad. Even though Iraq's suppliers, France and Italy, maintained that the reactor was for peaceful scientific purposes, Israel claimed it was designed for nuclear weapons. The attack was widely condemned as the site had been approved by the IAEA and was under its safeguards. In 2007, Israel, with the help of US intelligence, bombed an assumed nuclear facility in the Deir Ezzor region in Syria. Syria was also a party to the NPT and had not yet been obliged to declare the facility.

These attacks illustrate what is often called the Begin doctrine, which is about preserving Israel´s nuclear monopoly in relation to its neighbours. Prime Minister Begin explicitly stated that preventive strikes are not an anomaly, but a precedent for every future government in Israel, whether or not the countries are members of the NPT and the facilities are under safeguards.

These military actions challenge the non-proliferation regime and its cornerstone treaty, the NPT. They are illegal both according to the UN Charter and international law. While the line between a peaceful nuclear programme and a military programme is difficult to draw, and assumed nuclear intentions are ambiguous at best, there is no legitimacy for military action by an individual state.

The future of the NPT

Israel sees the potential of Iranian nuclear weapons as an existential risk. It is true that Iran does not recognise Israel´s right to exist, and Iranian leaders have called for Israel's destruction. The international community should condemn this rhetoric. However, it does not give the right to "pre-emptive" military intervention as the state's survival was not at stake.

As the recent US intelligence statement established, Iran had not made the decision to develop nuclear weapons beyond collecting enriched uranium. There was no immediate nuclear threat, and pre-emptive military action is illegal. Destroying nuclear facilities and killing scientists not only undermines permanent peaceful solutions to prevent proliferation in the Middle East but also creates further proliferation risks. After the attacks, Iran passed a bill that would enable it to halt cooperation with the IAEA and has expelled IAEA investigators. The Iranian parliament is also preparing the documents to leave the NPT.

Instead, NPT-supported negotiations on a regional zone free of nuclear weapons could help reduce the nuclear threat against Israel. But Israel has sabotaged the process by refusing to participate in all the negotiations proposed by the NPT review conferences. A MEWMDFZ could prevent military intervention

A MEWMDFZ could prevent military intervention as state members would ratify a regional treaty with high standards of verification, in some cases, both by the IAEA and regionally.

as state members would ratify a regional treaty with high standards of verification, in some cases, both by the IAEA and regionally. So far, there have been no cases where a member of a NWFZ has cheated and developed a nuclear programme. The next NPT Review Conference in 2026 should concentrate on preventing nuclear proliferation in the Middle East. It should draft a serious work programme for how to proceed with its commitment to MEWMDFZ before it is too late.

The impact of the military strikes will not only be felt in the Middle East; these strikes endanger the future of the NPT. The NPT review process has repeatedly underlined the need for the four states outside the NPT to join the NPT as non-nuclear states, so far without any result. The five NPT-accredited nuclear weapon states have repeatedly defended the NPT as a treaty to prevent proliferation. The militarisation of non-proliferation pushes the Nuclear Non-Proliferation Treaty into the margins. The arena is now free for any claims that a state has intentions to access nuclear weapons and, consequently, justifies military action against it, paving the way for regime change. Expanding Nuclear Weapon-Free Zones could guard against this.

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The non-proliferation outlook after the 12-day war: Moving beyond damage control

Almuntaser Albalawi

There is still room for mitigation, particularly by multilateralist European states and others who recognise the dangerous implications of unilateral actions on the non-proliferation regime.

The recent strikes on Iran's nuclear facilities have deepened uncertainty about the nuclear non-proliferation outlook both in the Middle East and globally. The attacks already appear to have reduced Iran's willingness to cooperate with the IAEA and possibly its engagement within the Non-Proliferation Treaty (NPT). Much depends on whether a renewed diplomacy with the anticipated talks between the US and Iran can achieve a breakthrough. If it fails, Iran, incentivised by recent attacks, is likely, at least in the short term, to double down on nuclear hedging and ambiguity. This consequential step could prompt other regional states to revise their nuclear policies and ambitions. It could also potentially lead to a new case of NPT withdrawal, trigger renewed contestation over the treaty's effectiveness and legitimacy, and further diminish trust in multilateral regimes and organisations.

While many experts rightly emphasise the urgency of containing damage by saving diplomacy and calling out violations of unilateral actions, it is equally important to move beyond ad-hoc solutions toward more sustainable approaches. This requires embedding any new diplomatic solution within a broader and long-term strategy that includes steps toward a regional arms control framework in the Middle East – one that addresses the underlying drivers of proliferation, including persistent mistrust and threats of other WMD programmes in the region. Any new agreement should also support the goal of establishing a WMD-Free Zone in the Middle East by promoting and incentivising regional arms control dialogue and expanding regional cooperation on peaceful uses of science and technology as part of a larger roadmap toward collective regional security.

The trajectories

Assessing the aftermath of the US and Israeli strikes on Iran remains challenging, as information about the damage is still unknown. Still, two facts are clear at this point: the attacks disrupted the already fragile yet ongoing rounds of Iran-US nuclear talks; second, despite the varying views on the damage inflicted, it is widely believed that Iran retains the knowledge and some capability to rebuild its programme and weaponise, should it decide to. This is particularly plausible if Iran moved its large stockpile of highly enriched uranium before the strikes.

Two diverging trajectories will further determine the implications of the twelve-day war. The first is a de-escalatory one, in which damage is controlled with revived diplomacy as Iran and the US, influenced by recent events, show more flexibility. This could take the form of a renewed zero-weaponisation framework based on breakout limits and intrusive monitoring. Such a framework would have to involve broader scrutiny of weaponisation activities beyond nuclear material production that addresses concerns about the future of Iran's nuclear programme, yet remains acceptable to Tehran. The second trajectory, which appears increasingly to be unfolding, is far more dangerous and confrontational: if diplomacy fails, Iran could permanently reduce its cooperation with the IAEA and reconsider its engagement in the NPT and other regional arms control talks – loosening the last fewest guardrails restraining nuclear proliferation at a time of

emerging trends of global armament and fading confidence in nuclear diplomacy and multilateralism.

High stakes: The non-proliferation regime and the Middle East Free Zone

Iran may further escalate the situation by invoking the right to withdraw from the NPT, becoming the second state in the region, alongside Israel, to stand outside the NPT. Iran's recent decision, following the war, to cut cooperation with the IAEA amid allegations that safeguards information has been used in targeting Iran's scientists and facilities can be seen as a precursor to withdrawal from the NPT.

A potential withdrawal by Iran would not only undermine efforts toward the universalisation of the NPT, but it could also open the door to more profound disputes regarding targeting safeguarded nuclear facilities, the right to peaceful uses, and the basis for withdrawal in cases of unilateral coercive or military actions. This would create serious tensions and further risk the already fragile robustness of the NPT.

Even if Iran stops short of withdrawal and keeps a comprehensive safeguards agreement with the IAEA, the attacks could still have caused substantial damage to the non-proliferation efforts. Should Iran reduce and delay international verification of its nationwide nuclear activities, including at the three key sites that were bombed, the international community would be left without the limited, yet vital, assurances previously provided by the IAEA. Such a scenario risks enhancing ambiguity surrounding Iranian enrichment activities and the fate of the over 400 kg stockpile of highly enriched uranium.

The fallout will not be limited to the NPT. Tensions will likely surface within the IAEA as the possibility of invoking the snapback mechanism, which restores sanctions on Iran, increases. These tensions could spiral if Iran's non-compliance is referred to the Security Council for action. Iran could seek escalation at the IAEA General Conference, where similar events, such as Israel's strike on Iraq's safeguarded reactor in 1981, triggered a major diplomatic rift that almost led to Israel's suspension and US withdrawal from the IAEA. Pressure and growing international concern over targeting safeguarded facilities may lead more states to condemn the attacks or scrutinise Israel's nuclear programme, risking further division within another vital non-proliferation forum.

This trajectory is also consequential to the Middle East as it could disrupt a fragile momentum toward regional arms control, particularly the efforts toward the Middle East WMD-Free Zone. Although Iran, despite Israel's absence, has actively participated in the five UNGA-mandated conferences to establish such a Zone, its continued engagement may depend on how the situation unfolds and how states react, especially regional states. Without Iran's active and serious engagement, and in the absence of Israel, the credibility and progress of the Zone conference process could be further undermined.

The long-term consequences of the attacks should thus be a deep concern. The strikes set another dangerous precedent for targeting safeguarded nuclear facilities, one that may be echoed in future

conflicts. They also reinforce dangerous narratives, similar to those during the Ukraine-Russia war, such as politicised international institutions and the perception that giving up or not possessing nuclear weapons is a liability in today's geopolitical environment. If left unchallenged, these narratives will grow to erode trust in global institutions and norms that have upheld the non-proliferation regime for decades.

Moving beyond damage control

The escalatory trajectory is not inevitable. There is still room for mitigation, particularly by multilateralist European states and others who recognise the dangerous implications of unilateral actions on the non-proliferation regime. These states have both the ability and incentives to help contain the damage and revive diplomacy by using their economic and political leverage to oppose further escalation and incentivise parties back to negotiation.

A diplomatic solution is still possible, as both the US and Iran continue to express interest in a negotiated deal publicly. The high stakes and damage inflicted during the twelve-day war should further motivate serious consideration of diplomatic alternatives. An agreement based on a zero-weaponisation framework, not necessarily with a complete ban on enrichment, could serve as a realistic basis for negotiation. In particular, this could address the most contentious aspect, enrichment, by building on a proposal allowing limited low-enrichment under strict international oversight, as a phased approach that later integrates it into a joint regional arrangement.

The future of Iran's nuclear programme is also closely interlinked with other regional dynamics. Therefore, addressing Iran's nuclear programme should be accompanied by a broader regional arms control process that offers a sustainable and practical path to mitigating the wider proliferation threats while opening the door to further regional cooperation and integration. A regional uranium enrichment consortium, for instance, would not only mitigate the concerns over Iran's nuclear intentions. It could also help provide a framework for managing other regional states' domestic enrichment ambitions while supporting legitimate aspirations for peaceful uses and technology.

For any such approach to be lasting and effective, it must be part of a broader regional roadmap. This should clearly define steps towards a collective security architecture in the Middle East, similar to ASEAN or OSCE, with aspects like regional cooperation and the WMD-Free Zone serving as key stepping stones.

Such a roadmap can be advanced through inclusive regional dialogues involving experts and officials, using Track 1.5 and Track II formats to develop realistic proposals and build necessary buy-in. While this is an ambitious long-term endeavour, it offers the most practical alternative to the unsustainable status quo and growing proliferation threats.

Initiatives like the UNIDIR Middle East WMD-Free Zone project, funded by the European Union, provide a strong model for supporting such a goal. Since its launch in 2019, the project has engaged numerous experts and officials from all over the region, including Israelis and Iranians, in direct dialogues to bridge gaps

and advance cooperative solutions. It has also produced policy research informing discussions on regional arms control.

At a time when such efforts are scarce, the international community should continue to support and scale up such initiatives that have proven to be essential for sustaining dialogue and strengthening regional partnerships as stepping stones toward improving the non-proliferation outlook in the Middle East.11 July 2025

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The NPT can't ignore emerging technologies anymore

Bailey Schiff and Diya Ashtakala

The NPT enters its 2026 Review Conference (RevCon) preparation under deep strain. Years of stalled disarmament progress, renewed great-power competition, and rising interest in proliferation have hardened polarisation within the NPT and left debates increasingly stagnant. As State Parties prepare for the May 2026 Review Conference, engaging with emerging technologies (ETs), which are already transforming military programmes, as well as verification and civilian nuclear programmes, offers a way to break entrenched debates.

Despite promising breakthroughs like antineutrino detection and AI-driven monitoring, State Parties at the 2025 Preparatory Committee (PrepCom) once again sidelined the applications of ETs for civilian purposes, such as detection and verification. This mirrors a broader policy and academic discourse that is fixated on the escalation risks of disruptive developments in the field of emerging technologies, while overlooking their positive applications. A more comprehensive discussion of ETs at the 2026 RevCon, covering both military and civilian uses, offers an opportunity to demonstrate the treaty's ability to evolve, reduce asymmetries among States, and promote innovation in non-proliferation and peaceful applications.

Status of emerging technologies in the NPT

ETs encompass a broad set of tools, from artificial intelligence, quantum technologies, and autonomous systems, that have not yet reached full maturity but are rapidly influencing both militaries and industry. Within the NPT, however, discussion has focused overwhelmingly on military applications, including AI-enhanced nuclear command, control, and communications systems (NC3) and hypersonic delivery platforms. Nuclear-weapon states such as the United States, Russia, and China have already integrated elements of these capabilities. This has prompted broad discussions in diplomatic and expert communities about the risks of AI-enabled NC3 systems, arms racing, and proliferation. This risk-centric framing with a special emphasis on the escalation risks of AI-nuclear integration also dominates the NPT debate. The 2022 Review Conference (RevCon) draft final document called for "intensify[ing] regular dialogue" on the implications of ETs on nuclear risks. At the 2025 PrepCom, Thailand warned that AI-enabled nuclear command-and-control systems risk "catastrophic escalation." Brazil argued that the integration of AI into NC3 raises the chance of nuclear use, while Kazakhstan emphasised the danger of "miscalculation and misuse" of emerging disruptive technologies.

The International Atomic Energy Agency has incorporated elements of machine learning, robotics, remote sensing, and digitalisation into its safeguard programmes, providing a foundation for future multilateral initiatives.

While ETs' destabilising impacts on nuclear stability deserve attention, they overshadow the conversation and neglect that these technologies are already embedded in civilian nuclear infrastructure. Within the NPT, only a small number of delegations, including through a recent working paper by the Stockholm Initiative, have tried to broaden the discussion beyond risks, focusing on ETs' potential to support nuclear verification. The question of how emerging technologies can support nuclear non-proliferation and peaceful uses of nuclear technology has, however, received little attention from NPT States Parties.

Opportunities from ETs

A more grounded debate on ETs at the RevCon starts with understanding how they are already transforming the NPT's verification regime and civilian nuclear energy efforts. The International Atomic Energy Agency (IAEA) has incorporated elements of machine learning, robotics, remote sensing, and digitalisation into its safeguard programmes, providing a foundation for future multilateral initiatives. Yet, gaps persist in scaling beyond pilot programmes and national initiatives.

Non-proliferation: As an international safeguards inspectorate, the IAEA utilises AI and machine learning tools to enhance the efficiency of the safeguards process, including the analysis of open-source information, the detection of nuclear materials, and the processing of large datasets. The Agency is also exploring avenues for AI in monitoring and detection capabilities, addressing emerging proliferation risks, and establishing governance frameworks for AI oversight; however, many initiatives remain at early implementation stages.

At the national level, there is broader recognition of ETs' contributions. The US State Department's International Security Advisory Board notes AI and associated technologies present "new opportunities to further enhance US nuclear proliferation detection," including early warning of emerging weapons programmes and shifts from civilian to military intentions. US national laboratories already employ machine learning to support forensic analysis of nuclear materials by comparing the IAEA database with unknown samples to trace illicit nuclear trafficking. Blockchain-based platforms allow for nuclear material accounting and control. SLUMBAT, developed by the Australian Safeguards and UNSW, monitors nuclear material transactions to improve diversion detection. These innovations reveal more proliferation indicators, strengthening the NPT's goal of preventing nuclear weapon spread, especially among peaceful energy users.

Peaceful use: The IAEA is exploring applications of AI and digital tools for enhancing safety and security of nuclear facilities, but this remains at an exploratory stage due to safety, cybersecurity, regulatory, and legal considerations. These constraints highlight the significant gaps that must be addressed before emerging technologies can be scaled in multilateral settings.

National operators and research institutions drive the majority of innovation in this space. South Korea's Korea Hydro & Nuclear Power (KHNP), France's Électricité de France (EDF), and the US's Oak Ridge and Argonne National Laboratories already employ AI systems in routine nuclear power plant operations to support reactor design and streamline regulatory information, thereby improving safety and optimising oversight. Experimental platforms are looking to expand AI integration by creating a "digital twin" of reactors, with efforts being made by Purdue University, KHNP, and Rosatom. These tools utilise machine learning to enable researchers to simulate, monitor, and remotely control the reactor in real-time, providing a potentially more affordable and low-risk option for training, diagnostics, and regulatory compliance. As global energy demand rises, AI-driven tools have the potential to enable safer and more reliable plant operations.

Other technologies are tackling nuclear energy's enduring challenge: waste management. The Swiss start-up Transmutex develops transmutation technology that converts long-lived radioactive waste into stable isotopes, potentially reducing waste in nuclear power plants by up to 80 percent and shortening decay times to under 500 years. Similarly, Lawrence Livermore National Laboratory's 2022 nuclear fusion ignition marks a milestone toward power generation that produces minimal waste and no greenhouse gas emissions. These breakthroughs could make nuclear power more politically viable, particularly in states that must balance climate goals with public resistance to long-term waste.

The way ahead for the RevCon

While progress on ETs may not resolve political divides within the NPT, meaningful engagement at the NPT RevCon offers a practical way to reassert the treaty's relevance while advancing transparency and peaceful innovation. To foster a more constructive debate on the civilian applications of ETs, the P3 and the Vienna Group of 10 could join forces to form an informal coalition in the run-up to and during the RevCon. This would not only enable them to build bridges between nuclear-weapons states and non-nuclear-weapons states, but also allow them to promote three complementary steps to align and scale IAEA, national, and private initiatives at next year's conference.

First, these states should make an effort to rebalance the narrative portraying emerging technology as inherently destabilising by demonstrating how it can advance equity, global development, and transparency under the NPT. Governments should highlight ETs' benefits for safeguards and lowering barriers to nuclear energy in national statements, working papers, and multilateral dialogues. Second, to bridge knowledge gaps between scientific and policy communities, these states, in collaboration with the IAEA, should call for a dedicated technical dialogue on the impacts of AI on verification and non-proliferation at the RevCon. Third, in partnership with the IAEA, the coalition should move beyond AI pilot programmes and knowledge-sharing platforms by spearheading an "AI-Nuclear Safety Center" under the Peaceful Uses Initiative. This could provide hands-on AI training, joint research, and regulatory support for power plant operators in developing countries.

By incorporating ETs into the NPT RevCon, State Parties can reassert the treaty's relevance, rebalance the three pillars, and break out of entrenched debates. Revisiting longstanding challenges regarding non-proliferation and the peaceful uses of nuclear technology through the framework of ETs may be one of the few practical paths to relieve pressure on the NPT by opening space for innovation and debate across the three pillars.

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Moving beyond condemnation: European nuclear diplomacy in Africa in the wake of Russia's full-scale invasion of Ukraine

Daniel Ajudeonu

The limited criticism of Russia by African countries in its war against Ukraine has generated much controversy in Europe. Many European countries wish for a stronger condemnation of Russia's aggression and a clearer positioning by African countries, despite the difficult position that some African countries find themselves in because of their existing economic cooperation with Russia. Some also expect a unified stance from African countries, even though Africa is a continent of 54 diverse sovereign nations, each with its own geopolitical interests, historical ties, and economic dependencies. While Africa's historic non-alignment posture partly explains its neutrality, Russia's growing role as a partner in Africa's nuclear energy development is a direct strategic lever also shaping Africa's neutrality: if African countries jeopardise this partnership by taking a stance against Russia on Ukraine, they risk undermining their own developmental ambitions. Thus, the degree of condemnation of Russia's invasion and the positioning of individual African countries could vary, albeit many maintain a general non-aligned posture. If European countries want to foster a more vocal Africa in European security affairs, European countries must provide African countries with convincing reasons to do so - and cooperation on peaceful uses of nuclear energy represents a vital opportunity.

Strategic reasons for cooperation

Critics may argue that while spending significantly on wars that threaten their security, such as the conflict in Ukraine, European countries lack the bandwidth to engage in nuclear energy development in Africa, which doesn't directly improve European stability. However, this perspective overlooks the strategic value of long-term partnership building.

If African countries begin to view Europe as a genuine long-term partner in nuclear energy development – rather than another external power seeking extractive relationships – African countries will become invested in European interests that enhance economic stability and prosperity. This investment could thus prompt more active African participation in European priorities, including support for resolving conflicts like the war in Ukraine. Through a mutually beneficial nuclear energy partnership, Europe has an opportunity to structure its relationship with Africa around continental interdependence while accelerating Africa's interest and active participation in European peace and stability.

If European countries want to foster a more vocal Africa in European security affairs, European countries must provide African countries with convincing reasons to do so.

Africa's non-aligned posture

For a long time, African countries have been known for holding a non-aligned posture during times of conflict between non-African nations. This traces back to the Cold War era when newly independent African countries sought to chart their own destiny between the competing Western and Soviet blocs. The non-aligned posture implies that African countries are not formally aligned with any major power bloc. This has enabled them to pursue diplomatic and economic ties with pro-Western and pro-Soviet (now pro-Russian) countries, while preserving their independence and autonomy in foreign policy decisions.

If African countries take sides in the war in Ukraine, they risk compromising their identity as non-aligned nations. If they take a stance against Russia, they further risk jeopardising economic cooperation with Russia, which has recently blossomed into nuclear energy partnerships – an area where Europe has been unable to support African development. This reveals that sometimes the non-aligned stance is not purely ideological but underpinned by pragmatic economic partnerships – such as Russia's provision of nuclear technology for African nuclear development.

Russian-African nuclear economic integration

Russia's state-owned nuclear corporation Rosatom is constructing nuclear energy facilities and providing capacity building and regulatory support to a host of African countries. Such partnerships include joint degree programmes, educational initiatives, workforce training, and the development of floating nuclear power plants to accelerate a clean and affordable energy supply for industrial and domestic consumption. These collaborative frameworks not only support Africa's transition to nuclear energy but also facilitate the development of technical nuclear expertise in Africa.

In the long term, a thriving nuclear energy sector can give Africa the capacity to power its own industrialisation. Given Africa's hopes for development through nuclear cooperation with Russia, it is unlikely that African countries will jeopardise this relationship by taking a stance against Russia in a conflict far away. Russo-African nuclear initiatives do not merely represent economic cooperation but create strong political bonds: such partnerships involve long-term development commitments, which make African governments wary of diplomatic actions that could imperil these projects – including open condemnation of Russia's military actions in Ukraine. Therefore, Europe should not expect African countries to backtrack from their neutral stance towards the Russia-Ukraine war. Their position will likely remain one of non-alignment, consistently "calling for both sides to end the war and pursue peace".

Securing Europe's role in Africa's nuclear development

Still, there is hope for European policymakers. Russian nuclear engagement in Africa not only promotes its economic interests but also serves as a diplomatic shield that limits African support for European-led condemnations in multilateral forums. Europe must acknowledge the reasons for African neutrality in the Ukraine war. Only if Europe offers comparable cooperation can it begin to counterbalance this influence and promote an African stance that is more in line with European security concerns.

The European Atomic Energy Community (EURATOM) maintains a pact with the South African government on mutual cooperation in the peaceful uses of nuclear energy. This agreement covers research and development, use of nuclear materials and technologies, transfers of nuclear material and equipment, and nuclear safeguards.

However, European countries face intensifying competition from China and Russia, who are aggressively expanding their African nuclear footprints.

Beyond Russia's spread across many African countries, in 2024, China unveiled the China-Africa Forum on the Peaceful Use of Nuclear Technology. Although the scope of this Forum is yet to be made known, it will undoubtedly strengthen China-Africa cooperation in Africa's nuclear energy development. As with many of China's development projects in Africa, cooperative activities under this framework will most likely be implemented by Chinese entities, but in cooperation with African partners, further solidifying China's grip on Africa's nuclear sector.

This signals that European countries, especially those with advanced nuclear industries like France and Sweden, should establish a more comprehensive and attractive cooperation framework with African countries interested in pursuing nuclear energy. Cooperation should not only focus on reinforcing nuclear safeguards and strengthening nuclear safety and security, but also include a broader commitment to economic development, as this is the fundamental goal of Africa's nuclear energy pursuit. An expanded partnership between Africa and Europe should transcend the limited scope of existing agreements through three key pillars – financing, technology transfer and localisation, and human capital development.

Towards a framework for African-European nuclear cooperation

Europe should create a dedicated African nuclear financing architecture that offers concessional incentives and standardised governance frameworks with greater transparency than traditional state-to-state agreements. A conduit for such cooperation could be the European Bank for Reconstruction and Development in partnership with the African Development Bank, since their missions align with providing financial assistance for development. Such a financing framework would differentiate European partnership from competitors who often rely on opaque bilateral arrangements, addressing African concerns about transparency and accountability.

European countries should also go beyond mere technology transfer to actively developing indigenous nuclear capabilities in Africa. Although technology transfer to Africa remains a critical debate in the global discourse due to the continent's insecurity challenges and the developing state of its nuclear security architecture, European countries should establish adaptable special arrangements within nuclear export controls (such as the Nuclear Suppliers Group) that allow for ease of technology transfer to African countries without compromising safety and security needs.

Investing in nuclear technology centres on the continent and ensuring joint ventures with European nuclear companies could also contribute to developing nuclear technology 'made in Africa for Africa'. This approach could create jobs on the continent and signal Europe's commitment to genuine technology transfer rather than creating African dependence – a concept that many Africans associate with colonial patterns and neocolonial dominance.

Finally, European countries must prioritise long-term relationship building through joint education and training programmes. When African and European nuclear professionals learn together and

collaborate, they build relationships that can evolve into institutional partnerships and influence policy preferences as these professionals become decision makers. Europe can facilitate this by establishing academic and professional nuclear policy and engineering programmes that enable joint study at European universities and training centres. Given financial constraints, these programmes should be scholarship-based to ensure broad participation.

Moving beyond limited cooperation agreements towards comprehensive nuclear partnerships that address African aspirations for development and energy security offers Europe a rare opportunity to simultaneously advance its own stability, counterbalance Russian influence, and build genuine interdependence – but only if European leaders act with the urgency this opportunity demands.

12 August 2025

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An expanded partnership between Africa and Europe should transcend the limited scope of existing agreements through three key pillars – financing, technology transfer and localisation, and human capital development.

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