Guardrails Needed

Karen Hallberg

Eighty years since the dawn of the nuclear age – which began with the first nuclear test in New Mexico, USA, and with the tragic atomic bombings of Hiroshima and Nagasaki – humanity faces a deep existential crisis. This crisis is much more unstable and unpredictable than the gravest Cold War confrontations. In 1955, when there were only three nuclear weapons states and the first thermonuclear weapon was being developed, the Russell-Einstein Manifesto posed a profound question: "Shall we put an end to the human race; or shall mankind renounce war?" Today, with 9 states possessing nuclear weapons and several thousand thermonuclear devices, this question becomes an ultimate choice.

The Pugwash Conferences is deeply concerned about a debilitated international system, where the threat and use of force has become preferable to diplomacy. The current military confrontations involving nuclear weapons states pose an existential risk to civilization, a risk that can be drastically increased by a new wave of nuclear proliferation.

With the expiration of the New START between the United States and the Russian Federation, the international community has officially entered an era without a binding, verifiable agreement to constrain the world's two largest nuclear arsenals. For the first time in more than fifty years, dating back to the era of the 1972 SALT I, the two preeminent nuclear powers are operating without the essential guardrails that provided control, stability, predictability and transparency to the global order.

The historical significance of this expiration cannot be overstated. Since the early 1970s, a succession of treaties between the US and Russia, SALT, ABM,

Dr. Karen Hallberg is Secretary General of the Pugwash Conferences on Science and World Affairs. She delivered this address to the Moscow Conference on Non-Proliferation, 13 March 2026.

INF, START, and SORT treaties, created a framework of mutual restraint. These agreements were built on the rigorous, scientific verification of data. The Pugwash Conferences, through technical and policy-oriented meetings, played a key role in these discussions.

These agreements were instrumental in reducing the total number of nuclear warheads from around 70,000 in the mid-eighties to current ~12,400 (or a yield larger than 146,000 Hiroshima-bombs equivalent!). However, despite historic progress in reducing global nuclear stockpiles, the current trajectory suggests a troubling reversal of those hard-won security gains in times of a resurgent nuclear arms race, heightened global tensions and military confrontations involving nuclear weapons states.

Moreover, the extensive expansion and modernization of the nuclear arsenals of most nuclear-armed states is adding new pressures to global strategic stability, particularly in the absence of any arms control dialogue.

In this light, we cannot stress enough the potential damage that unconstrained nuclear buildups will cause to the security of each nuclear weapons state, let alone all states and global security. Such steps signal a reinforcement on nuclear capabilities, undermining global non-proliferation and disarmament efforts, in particular, Art. VI of the Non-Proliferation Treaty.

Equally troubling are irresponsible threats by nuclear-armed states to resume nuclear testing. Such rhetoric contributes to a potentially dangerous escalation and threatens the continuation of the longstanding moratorium on nuclear explosive testing established in anticipation of the entry into force of the Comprehensive Nuclear-Test-Ban Treaty, which still awaits ratification by key states.

As we approach the 2026 NPT Review Conference, there are scant hopes for a positive outcome if no clear signs to reduce the reliance on nuclear weapons are produced. The NPT is the backbone of non-proliferation. It has definitely constrained the spread of nuclear weapons for more than half a century and is now under severe strain.

Recent discussions to expand nuclear deterrence arrangements within Europe to non-nuclear weapons states, together with emerging political voices advocating in favor of nuclear weapons in East Asia, risk igniting a new, uncontrollable wave of proliferation to safeguard their own survival.

The current situation poses great challenges ahead, which can and should be addressed immediately, without delay. As stated in the Declaration of the Nobel Laureate Assembly issued in July last year and signed by 129 Nobel Laureates:

> "While the only way to truly eliminate the risks of nuclear war is to eliminate nuclear weapons, there are important, timely steps that can support the longer-term effort to achieve nuclear disarmament."

It is of utmost urgency that the nuclear weapons states begin discussions at the highest levels to agree on an overarching moratorium on the current status quo, across the most critical parameters governing nuclear arsenals and strategic stability.

- An important first step would be to build on the call made several months ago by Vladimir Putin and initially welcomed by Donald Trump. It was proposed that both countries adopt parallel unilateral commitments to observe a one-year moratorium on exceeding the numerical limits and parameters established by the New START Treaty.
- At the same time, the N-5 states must recognize their responsibility to find areas of overlapping interest on which to engage one another in a serious diplomatic effort in multilateral arms control negotiations.
- Additionally, all nuclear-armed states should reiterate their voluntary commitment to a moratorium on nuclear explosive testing and take the necessary steps to secure the prompt entry into force of the Comprehensive Nuclear Test Ban Treaty. Resuming nuclear explosive testing will signal a dangerous trend towards escalation.
- Nuclear-weapons states should reinforce negative security assurances by reaffirming that they will neither use nor threaten to use nuclear weapons against non-nuclear-weapon states, adopt no-first-use commitments, and work toward making these assurances legally binding.
- Finally, the heads of state of the five NPT nuclear weapons states should reconfirm their Joint Statement issued on January 2022 on preventing nuclear war and avoiding a nuclear arms race sending a clear signal on the political will to the diminish the role played by nuclear weapons inn international security.

These steps could serve as practical confidence-building and risk-reduction measures, fostering global stability and preventing a spiralling "nuclear breakout". They could also serve as a diplomatic bridge towards a more cooperative, comprehensive and modernized future security architecture, addressing modern challenges including emergent technologies (such as AI in the command and control of nuclear weapons and quantum sensors), hypersonic weapons, missile defence systems, space-based military capabilities and autonomous weapons.

At the same time, strengthening the verification and monitoring role of the International Atomic Energy Agency will remain essential to ensuring transparency, compliance, and trust within the global non-proliferation regime.

By publicly committing to maintain these constraints, the nuclear weapons states would demonstrate their shared responsibility to safeguard the strategic landscape and uphold the Non-Proliferation Treaty ahead of its upcoming Review Conference this year. In doing so, they would also reaffirm their obligations under Article VI of the treaty, which commits all parties to pursue negotiations in good faith toward ending the nuclear arms race and achieving nuclear disarmament.

We, the Pugwash Conferences, are ready to help. We need dialogue, we need bridges, we need to restore confidence.

It is a great honour to have been invited to this prestigious event. I am looking forward to fruitful, forward-looking and frank discussions on ways to reduce the nuclear threat and find peaceful means of settlement of all disputes. Dialogue and understanding is the only way forward. Let's remember our humanity and forget the rest.

From the archives ...

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Rutherford centenary stamp—in Russia

From Dr T. E. Allibone, FRS

Sir, There have been queries in public and in the press about the absence of a stamp to commemorate the greatest physicist of the twentieth century, one whose work has laid the foundation of nuclear power. I would like to supply the facts of the matter—accurately. I have not done so hitherto as I wished to tell the story first at the Royal Institution Friday Evening Discourse on "Rutherford" last night.

The Royal Society decided in March 1970 to celebrate the centenary of Lord Rutherford's birth in October, 1971, and asked me to organize this with the help of a small committee. I wrote immediately to the Minister of Posts and Telegraphs stating the case for the issue of such a centenary stamp; he promised to give this careful consideration when the issues for 1971 were being decided. In due course he informed me with regret that other subjects had taken precedence. In August of this year we had the jubilee of the British Legion, and the centenaries of rugby football and the City of York; in September we had four modern university buildings, concrete glass boxes looking very much alike.

In August the Russian Academy of Sciences invited me to their centenary celebrations on "Rutherford" and Academician Kapitza showed me the stamp due to be issued on August 24. I told him of my efforts and he said he had had exactly the same reaction from the Russian Post Master but, he said, "you see that other telephone on my desk; that is directly connected to the Kremlin and the Prime Minister so I picked it up and said, 'Mr Brezhnev, I want a stamp to commemorate the centenary of the birth of Lord Rutherford'; 'O.K.', said Mr Brezhnev."

I do not have a second telephone on my desk.

Yours truly,
T. E. ALLIBONE,
Little Grange, Hurst, Berkshire.
October 30.