



Confronting the New Nuclear Peril

How a Global Fail-Safe Can Prevent Catastrophe

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In late March, Russian President Vladimir Putin announced that Russia intends to return short-range tactical nuclear weapons to Belarus, underlining yet again the terrifying prospect of the use of such weapons in the war in Ukraine. Meanwhile, North Korea is pursuing an accelerated program of missile tests, including of intercontinental ballistic missiles that can strike the United States. China appears committed to a significant expansion of its nuclear weapons program. And the future of nuclear arms control looks bleak, following Russia’s announcement earlier this year that it was suspending implementation of certain obligations under the New Strategic Arms Reduction Treaty (New START) with the United States.

In view of these alarming developments, finding new approaches to preventing nuclear weapons use has never been more urgent. The available avenues for reducing the nuclear threat, strategies that have been built since the 1962 Cuban missile crisis, continue to close. It is hard to imagine that any new treaty on nuclear arms can be negotiated between the United States and Russia and ratified by the U.S. Senate, when trust between Washington and Moscow is at zero and dialogue is frozen. Unrestricted nuclear competition between Washington and Moscow will now overlap not only with China’s expanding nuclear arsenal, and growing threats from North Korea and Iran, but also with efforts by India and Pakistan to advance their nuclear capabilities and even with some U.S. allies considering whether to acquire their own nuclear weapons. The warning bells are deafening.

And yet one effective form of global threat reduction is both feasible and doable: preventing the unauthorized or inadvertent use of nuclear weapons. The United States has already begun this effort internally—a crucial step in itself—with the hope that other nuclear weapons states will follow suit. There is a growing danger that nuclear weapons could be used based on faulty judgment, false warnings of attack, or other miscalculation. Aided by rapid shifts in technology, U.S. adversaries, including nonstate actors, could use cyberattacks to disrupt the command and control of nuclear weapons and early warning systems—the systems that can start the clock on a possible nuclear response leaving governments only minutes to decide whether to proceed.

If the world is going to survive a new era of nuclear competition, every nuclear-armed country must strengthen its defenses against cyberthreats and the possibility of rogue, accidental, or mistaken use of a nuclear weapon. Fortunately, they can do so even in the absence of bilateral or multilateral treaties, by advancing a global nuclear fail-safe—a system of self-imposed safeguards taken by each member of the nuclear weapons club. The responsibility that accompanies nuclear weapons capability should compel such states to actively focus on avoiding a nuclear catastrophe.

PROTECTING THE AMERICAN ARSENAL

The concept of nuclear fail-safe dates back to the 1950s, when it was focused on nuclear-armed bomber delivery systems. In later decades, it was applied more broadly to ballistic missiles. But it has been 30 years since the United States made its last comprehensive review of nuclear fail-safe. The commission appointed in 1990 by Secretary of Defense Dick Cheney and chaired by the former U.S. ambassador to the United Nations Jeane Kirkpatrick recommended more than 50 specific steps to prevent accidental, mistaken, or unauthorized use of a nuclear weapon. Since then, a number of factors have combined to heighten the risk of a nuclear blunder: faster and more powerful delivery systems, the rise of cyberthreats, the increasing dependence of launch systems on digital technology, less communication between nuclear rivals, reduced decision time for leaders of nuclear-armed countries, and new defensive challenges resulting from advances in nuclear systems.

Washington has recognized the need to address these growing threats. On the recommendation of the House and Senate Armed Services Committees, legislators included a provision in the 2022 National Defense Authorization Act requiring the secretary of defense to “provide for the conduct of an independent review of the safety, security, and reliability” of nuclear systems. This congressional authorization has given the White House a rare bipartisan foundation for advancing nuclear fail-safe at home and abroad. The Biden administration has also given priority to nuclear security, including by committing to a fail-safe review in its October 2022 Nuclear Posture Review. The administration has assigned the RAND Corporation and the MITRE Corporation to lead that effort under the direction of the Department of Defense.

The broader aim of the U.S. review of nuclear fail-safe protocols should be to reduce and, where possible, eliminate the risk of mistaken nuclear use. In particular, the review should seek to prevent the use of nuclear weapons through an accident, a miscalculation, a false warning, terrorism, or a deliberate act by an unhinged leader. The review should assess ways the government could improve technologies, processes, and policies related to the nuclear arsenal while maintaining required levels of command and control for deterrence. For example, the review could propose a system that would allow for the post-launch destruction of nuclear weapons or their associated delivery systems before they reached their target, in the event that a launch takes place in error. The review should also call for new guidance informing the president’s decision to use nuclear weapons, including specifying consultations with relevant officials in the executive branch and in Congress when the decision-making time allows for it. Importantly, a forward-looking U.S. fail-safe policy must look beyond the current Nuclear Posture Review and provide for regular reviews, perhaps every five years, to take account of rapidly changing technological and political realities.

The 1990–92 U.S. fail-safe review came at a crucial time: the Cold War was ending, and new technologies were rapidly emerging. New fail-safe measures were badly needed, and the review led to important enhancements in U.S. security, including steps to strengthen safeguards against the mistaken launch of a nuclear ballistic missile. Thirty years later, with cyberwarfare already well developed and a dangerous new nuclear age beginning, the new U.S. fail-safe review is even more urgent. Amid the erosion of arms control agreements and other global and regional security mechanisms, the U.S. review will be critical to reducing nuclear risks. Other nuclear-armed countries must take their own parallel steps.

A SAFER NUCLEAR CLUB

In today’s perilous era, every nuclear weapons state has a vital national interest in using all available tools to prevent a mistake or security breach from turning into a disaster. The same dangerous and potentially deadly dynamics that have spurred Washington to pursue a fail-safe review almost certainly exist in other nuclear capitals. No matter how recently such measures might have been incorporated into nuclear planning, the case for frequent, updated fail-safe reviews has never been stronger. The absence of such periodic reviews in most of the nuclear weapons club elevates the present and future danger to all.

Given that a nuclear accident, an act of sabotage, or a terrible miscalculation would surely have global implications, any country with nuclear weapons should conduct its own internal review of fail-safe protocols. When these reviews are completed, declassified portions could be shared with other nuclear powers. The five acknowledged nuclear weapons states in the Nuclear Nonproliferation Treaty (NPT)—China, France, Russia, and the United Kingdom, along with the United States—could share their declassified reviews in the context of the P5 Process, the forum that brings together those countries to discuss their NPT obligations. Other nuclear-armed powers, such as India and Pakistan, may find it in their security interests to follow suit.

The United States can also encourage international cooperation as part of its own nuclear fail-safe review. For example, it could call on other nuclear states to work with the U.S. government to establish cyber-nuclear “rules of the road”—steps that governments should take to help define norms to protect their nuclear arsenals from cyberattacks. And it could seek to establish clear redlines, including cyberattacks on vital nuclear infrastructure such as early warning and command and control systems. The U.S. review should also call for the creation of a joint center of nuclear-armed states—and perhaps NATO member states, too—for the exchange of data from early warning systems and for notifications of missile launches. Such a step could provide a crucial guardrail to prevent a mistaken nuclear response.

Current geopolitical tensions must not stand in the way of such dialogue. Since its invasion of Ukraine, Russia has made reckless statements about its readiness to use nuclear weapons, and many Western powers are understandably reluctant to maintain communication with Moscow. But the Russian government, no less than any other nuclear-armed state, has a crucial interest in the safety and security of its own arsenal and the arsenals of the other nuclear powers. Moscow and Washington have discussed the issue in the past: during the Cold War, of course, but also as recently as June 2021, when Russia and the United States established a bilateral strategic stability dialogue, in which both sides committed to lay the groundwork for future arms control and risk reduction measures. Although the prospect of Russia taking action in coordination with the United States and other nuclear-armed states may now seem remote, it is still possible to envision Russia contributing to global nuclear risk reduction by engaging in a serious fail-safe review of its own nuclear weapons. The same could reasonably be expected of Beijing. In parallel with dialogue among the five permanent members of the UN Security Council, internal fail-safe reviews could also lead to proposals for bilateral and multilateral risk reduction measures by nuclear weapons states.

To achieve meaningful progress, a broader fail-safe effort would benefit from strong endorsement in international forums. The G-7 meeting scheduled to take place in Hiroshima in May offers an important opportunity to address the issue. For example, a joint statement by France, the United Kingdom, and the United States, in which each country commits to undertaking its own internal fail-safe review and supports dialogue on nuclear dangers, could open the door to risk-reduction steps by all nuclear-armed states, including Russia and China. In turn, the nonnuclear members of the G-7—Canada, Germany, Italy, and Japan—have a shared interest in advancing a global nuclear fail-safe and could also support such an initiative.

THE WORLD CAN’T WAIT

As long as there is war in Ukraine, there will be a real risk of nuclear escalation in the region. The most effective and durable solution to reducing that risk would be a negotiated cease-fire that moves the conflict from the battlefield to the conference table. But such a breakthrough will only happen when Kyiv and Moscow conclude that it is in their best interests. Russian leaders must accept that while Russia can destroy Ukraine, it cannot own or peacefully occupy it. Ukraine’s leaders must be confident that they can defend their territorial integrity, independence, and sovereignty from any future Russian aggression.

Beyond Ukraine, it is clear today that an increasing reliance on nuclear weapons for deterrence by nine nuclear-weapons states threatens the future of humanity. A new global security paradigm is urgently needed. The ultimate nuclear fail-safe measure, of course, would be to verifiably eliminate nuclear weapons, once and for all. That historic step, however, is unrealistic in the near term, given the growing great-power tensions and the decline of arms control regimes. Indeed, it now seems more likely that the world could see global nuclear weapons inventories grow substantially in the coming years. Even if the goal of disarmament remains elusive, there is still much that nuclear-armed states can do now to prevent a possible catastrophe. The world cannot afford to wait for more peaceful times to reduce the risks of nuclear use.