



Report of a Workshop on Nuclear Latency

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Nuclear latency can be viewed as the possession of many or all of the technologies, facilities, materials, expertise (including tacit knowledge), resources and other capabilities necessary for the development of nuclear weapons, without full operational weaponization. Technically, latency derives from the dual-use nature of the atom. The issue also has to be seen historically ... involving the full range of capability possessed by aspiring, existing and former nuclear-weapon states, and the possible diffusion of nuclear-weapon relevant information via a number of outlets, including non-state nuclear supply networks, the Internet and other means.

Nuclear latency has been an issue for nearly seven decades. Concerns about latency in the form of the possible misuse of civilian nuclear power programs for military purposes were on the minds of the authors of the Acheson-Lilienthal Report and the Baruch Plan. In this context, nuclear latency was seen to pose a technological threat that could result in strategic surprise. Although the threat emanating from a single weapon or a small arsenal is not seen in the same way it was in the 1940s, there remains a concern that some limited number of nuclear weapons could dramatically change the strategic equation. Iran's nuclear program has raised the issue at one end of the continuum; revitalized interest in disarmament at the other.

Neither the Nonproliferation Treaty nor other existing nonproliferation and arms control treaties directly address latency, and the concept is not fully encompassed and explored in the policy debates over nuclear weapon proliferation or the treaties, institutions and norms designed to address these threats through nuclear nonproliferation, arms control and disarmament. From the perspectives of both nonproliferation and disarmament, latency is a reality that can be seen as positive or negative but in any case complicates the achievement of the objective. Is nuclear latency unique? Is latency a condition for nuclear-weapon states and for many non-nuclear-weapon states? Can it be a strategy for proliferant states? Can it be a viable nonproliferation strategy? How has latency been seen and addressed in the past? Will latency be a positive or negative for future efforts to control or eliminate nuclear weapons? To what extent would latency exist in a nuclear...free world? To explore these and other issues from historical and policy perspectives, the Los Alamos National Laboratory in cooperation with the Woodrow Wilson International Center for Scholars held a workshop on "Nuclear Latency" at the Wilson Center in Washington, DC, on October 2, 2014. The following is a summary report of the discussion.

¹ The views expressed are the author's summary of discussions and are not the views of the Los Alamos National Laboratory, the National Nuclear Security Administration, the Department of Energy or any other agency. The views should also not be construed to be those of any individual participants.

Exploring Nuclear Latency

Among the participants, there was widespread recognition that nuclear latency is an important but understudied issue with significant implications for nonproliferation, arms control and disarmament. It was argued that nuclear latency was a special case of strategic latency.²

There was some discussion of the definition of nuclear latency. Some argued that a precise, agreed upon definition was needed, while others contended that a general, inclusive definition was far more useful.

In this context, there was a recognition that latency is difficult to characterize and measure. One participant stated that arguments tying nuclear latency to the concept of strategic latency were not helpful.

weapons while avoiding some of the diplomatic, economic and other costs of operational weaponization. One participant argued that Iran has not yet decided to develop nuclear weapons amid complex domestic politics where some favored weaponization and others the so-called "Japan model." Latency appears to have emerged as the compromise stance. On the other side, one participant argued that STUXNET bought some time, but may have also increased Iran's resolve to continue its activities; another participant argued that the threat of a military strike was essential to preventing Iran from taking any further steps toward weaponization.

One participant argued that Japan had never made a decision to develop nuclear weapons, but that pursuit of nuclear technology and capability was undertaken for industrial and prestige reasons. Among the participants, Japan was widely viewed as having a significant latent capability due to its nuclear fuel cycle. In addition, Japan possessed delivery systems and human expertise. Complicating the issue of latency was the recognition of the importance of creating a secure second strike capability vis-à-vis China if Japan were to go nuclear, as well as normative and other issues surrounding long-standing Japanese efforts to promote nonproliferation and disarmament. One participant argued that after Fukushima, Japan was on the path to becoming a "nuclear moratoria" state. It would have strategic decisions to make, including whether it needed to revive its nuclear power program not only because of energy requirements but also because of the pressure of hedging against so many nuclear powers in the region.

Brazil has had a long-standing fuel-cycle program administered by the Navy that many observers regarded as offering a latent capability. Brazil's commitment to naval propulsion was noted. However, one participant argued that Brazil has no security issues and that a program run by the military is not necessarily a military program. Only an Argentine bomb could lead Brazil to a bomb, he argued. It was argued by another participant that Brazil sees the international nuclear order as illiberal and looks at Iran's problems in the context of its own over the last several decades.

It was recognized that latency will exist, along with some level of hedging, in a nuclear-weapon-free world. Shutdown nuclear-weapon programs can be reconstituted; civil nuclear programs can be used, or misused, to make weapons by states and possibly even non-state actors. One participant argued that disarmament could make hedging the norm.

In the disarmament arena, it has been argued that latency can offer a reduced risk of accidental or unauthorized use on the positive side. However, latency also allows a high level of crisis instability and the prospect of disarmament being rapidly reversed. It was recognized that nuclear reversal, or roll back, has occurred often in recent history, from South Africa to Iraq and Libya, but one participant argued that the process was often uncertain, murky and ultimately reversible. A broader discussion of the issue of irreversibility was raised. Latency certainly complicates this central issue of arms control and disarmament.

A frequent assumption in the debate is that latent capabilities enable disarmament and that nuclear-weapon states can choose whether or not to rely on these capabilities as a hedge against disarmament. Whatever one's view of disarmament, this argument has problems and uncertainties. More specifically, it is argued by some observers that the latent capabilities that existed during reductions and remained after disarmament would deter in and of themselves.

The argument that latency will have a positive deterrent effect without nuclear forces in being is not clear or compelling. At any point short of a global zero, most nuclear powers would likely view reliance on latent capabilities as posing unacceptable risks. Even in a nuclear-weapon-free

world, politicians and bureaucracies would be resistant to any regime without a developed protocol that precisely delineated prohibited capabilities and ensured allowed capacity was not asymmetric and could be fully resourced and exercised. There is no question that at least some aspects of such an arrangement would be essentially unverifiable and would have to be addressed if at all as a cooperative or confidence building measure if at all possible.

In practice, these capabilities could in an agreement be merely recognized; sanctioned and preserved; or proscribed and dismantled to the extent possible.

If virtual capabilities (without forces in being) are to serve as a hedge--albeit one of uncertain value--this would require, among other things, human capital and facilities that cannot simply be mothballed. Both would need to be exercised. If this approach were to be pursued, it was argued by one participant, it would require an ambitious program for maintaining capability. The 2010 Nuclear Posture Review (NPR) called for a sound Stockpile Management Program for extending the life of U.S. nuclear weapons in order to ensure a safe, secure, and effective deterrent without the development of new nuclear warheads or further nuclear testing.

The NPR declared that "the United States will not develop new nuclear warheads. Life Extension Programs (LEPs) will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities."³

Although modernization of the nuclear infrastructure has been criticized as inconsistent with our arms control and nonproliferation objectives, the NPR argues it is essential to realize those objectives:

By certifying the reliability of each weapon type we retain, the United States can credibly assure non-nuclear allies and partners they need not build their own, while seeking greater stockpile reductions than otherwise possible. Further, a corps of highly skilled personnel will continue to expand our ability to understand the technical challenges associated with verifying ever deeper arms control reductions.

Through science and engineering programs that improve the analysis of the reliability of our warheads, we also enhance our ability to assess and render safe potential terrorist nuclear devices and support other national security initiatives, such as nuclear forensics and attribution. Expert nuclear scientists and engineers help improve our understanding of foreign nuclear weapons activities, which is critical for managing risks on the path to zero. And, in a world with complete nuclear disarmament, a robust intellectual and physical capability would provide the ultimate insurance against nuclear break-out by an aggressor.⁴

Moreover, by modernizing the aging U.S. nuclear weapons-supporting facilities and investing in human capital, the NPR argued, "the United States can substantially reduce the number of stockpiled nuclear weapons we retain as a hedge against technical or geopolitical surprise, accelerate the dismantlement of nuclear weapons no longer required for our deterrent, and improve our understanding of foreign nuclear weapons activities."⁵

The debate was said to be more complex than it might appear. Any hope for realizing a long-term technological solution is put into question by the limits and issues of the US Stockpile

³ *Nuclear Posture Review Report* (Washington, D.C.: US Department of Defense, April 2010), at <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>.



Agenda— Workshop on Nuclear Latency

October 2nd, 2014

08:30 Arrival and Light Breakfast

09:00 Welcoming Remarks

09:30 Nuclear Latency: History, Concepts, and Issues

Michael Nacht

University of California, Berkeley

Ariel Levite

Carnegie Endowment for International Peace

Alexander Montgomery

Reed College