



## Working with the Adversary: Great Power Cooperation and Nuclear Risk Management

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## Abstract

Near-term prospects for US cooperation with either Russia or China—let alone both—to reduce risk in the nuclear field are very dim. But there is no reason to assume that they will remain so forever. Drawing on three in-depth historical case studies as well as a review of the relevant international relations literature, this report is written for policy-makers looking to identify and seize opportunities for security-enhancing nuclear cooperation when they arise in the future. The key finding is that great power nuclear cooperation is more likely to develop and endure when relative material gains are not perceived as relevant, policy-makers' time horizons are long, and cheating is difficult to conceal. In addition, the report provides both strategic- and tactical-level recommendations for officials pursuing security-enhancing cooperation. It aims to ensure that the US government is prepared to employ the full range of potential strategies—cooperative and competitive—to advance US national interests.

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This document contains the best opinion of CNA at the time of issue.

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**Cover image credit:** Artist's concept of Soviet SS-20 mobile intermediate-range ballistic missile systems in launch position from Defense Intelligence Agency *Soviet Military Power* 1985. SS-20s as well as US Pershing II and Ground Launched Cruise Missiles were eliminated under the terms of the 1987 Intermediate-range Nuclear Forces Treaty.

Approved by:

March 2023

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# Executive Summary

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The United States is engaged in long-term competition with two major nuclear-armed adversaries—China and Russia. Although each poses somewhat different threats, both states are revisionist powers capable of challenging the US, its allies, and its partners across the spectrum of conflict. For example, according to the 2022 US National Security Strategy,

The most pressing strategic challenge facing our vision is from powers that layer authoritarian governance with revisionist foreign policy. It is their behavior that poses a challenge to international peace and stability—especially waging or preparing for wars of aggression, actively undermining the democratic political processes of other countries, leveraging technology and supply chains for coercion and repression, and exporting an illiberal model of international order.<sup>1</sup>

Together, China and Russia are the United States’ primary adversaries, and competition is the dominant lens through which we view our relations with them.

At the same time, the US also aims to cooperate as practicable with both Russia and China to manage nuclear risks. Because the potential harms of nuclear use and proliferation are so great and because all three great powers share an interest in avoiding these harms, US policy is to “continue to pursue engagement with other nuclear-armed states where possible to reduce nuclear risks.”<sup>2</sup> This is not cooperation for cooperation’s sake. Such nuclear cooperation can enhance US security even in the context of broader competition.

Yet because of Russian and Chinese behavior in recent years, near-term prospects for pursuing this nuclear cooperation are dim. Opportunities to work together will likely be few and far between. Correspondingly, US officials would be wise to make the most of whatever opportunities might arise.

This paper aims to ensure that they are prepared to do so.

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<sup>1</sup> The White House, *National Security Strategy*, Oct, 2022, p. 8, <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf>.

<sup>2</sup> US Department of Defense, *2022 National Defense Strategy, 2022 Nuclear Posture Review*, Oct, 2022, p. 1, <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF>.

## Research approach

CNA set out to answer the question, “When and how can competing great powers cooperatively manage the risks associated with nuclear use and proliferation?” We framed this question so that its answer would provide practical guidance on both when cooperation might work and how to increase the odds of success.

To answer that question, this study draws on international relations theory as well as three in-depth case studies of attempted great power nuclear cooperation: one in which such efforts failed (Eisenhower’s Open Skies proposal), one in which they were partially successful and then failed (the 1958–1961 nuclear test moratorium), and one in which they were successful (the North Atlantic Treaty Organization (NATO) nuclear sharing agreement that led to the Non-Proliferation Treaty). By studying both failures and successes, this study highlights factors that can contribute to both outcomes.

- *President Eisenhower’s 1955 Open Skies proposal.* At the Geneva Conference on disarmament on July 21, 1955, Eisenhower dramatically proposed that the US and Soviet Union permit reciprocal overflights of one another’s territories to increase mutual confidence that neither side was preparing for war. On August 4, 1955, the Soviets definitively rejected the US “aerophotography” proposal. *This case was an example of immediate failure.*
- *The 1958–1961 US-Soviet nuclear test moratorium.* On March 31, 1958, the USSR declared its intention to halt nuclear testing conditional on a US and United Kingdom agreement to do the same while negotiating a test ban treaty. Seven months and many hurried tests later, the moratorium was firmed up. It held for nearly three years across two presidencies. However, technical uncertainty about verifying treaty compliance, domestic pressures to resume testing, and the desire to best the other side in the court of public opinion all dogged the test ban talks. The moratorium collapsed when Moscow resumed testing in September 1961. *This case began as a success before ending in failure.*
- *The 1964–1966 US-Soviet agreement on NATO nuclear sharing and the Non-Proliferation Treaty.* When Lyndon Johnson assumed the presidency on November 22, 1963, reducing the risk of nuclear war was his highest foreign policy ambition. To that end, he sought to negotiate a treaty banning nuclear proliferation. However, the ongoing US effort to stand up a nuclear-armed NATO Multi-Lateral Force was anathema to the Soviet Union, which feared any step that would bring West Germany closer to the bomb. Between 1964 and 1966, the US and USSR worked out a bilateral agreement on NATO nuclear sharing that preserved the status quo in Europe and denied West Germany independent nuclear capability. This was the critical but often

overlooked great power agreement that opened the door to what ultimately became the 1968 Non-Proliferation Treaty. *This case was a success.*

All three cases are intentionally drawn from the first decades of the Cold War—before US-Soviet bilateral arms control was routinized and when policy-makers on both sides learned to cooperate through experimentation. They were chosen, in part, out of a belief that studying how the pioneers of great power nuclear cooperation learned by doing may help contemporary policy-makers do better themselves.

## Findings and recommendations in brief

### Core findings

The central finding of this study is that *risk-reducing great power nuclear cooperation is more likely to develop and endure when relative material gains are not perceived as relevant, policy-makers' time horizons are long, and cheating is difficult to conceal.*

This statement captures three factors at the operational-level of diplomacy that policy-makers can influence and that have direct bearing on whether great power nuclear cooperation succeeds or fails. Those drivers of success and failure are as follows:

- Relative advantage—whether policy-makers perceive that cooperation would leave either great power better or worse off with respect to each other.
- Time horizons—whether policy-makers are willing to forgo easy short-term benefits to cooperatively pursue an objective or mitigate a threat that lies years or decades in the future.
- Cheating—whether the details of a cooperation arrangement are such that the potential costs and risks of being caught are perceived to outweigh the benefits to either side of cheating.

### Core recommendations

Based on these findings, we recommend the following to US policy-makers seeking to manage nuclear risk through cooperation with adversaries:<sup>3</sup>

- Identify areas in which neither side (the US nor its rival(s)) would gain disproportionate benefits from cooperation. Non-proliferation and nuclear safety and security agreements are good historical examples.

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<sup>3</sup> These recommendations may also be useful in cases that involve non-great powers or that do not involve nuclear risk. However, such cases are outside the scope of this study.

- Forgo short-term advantages during the pursuit of long-term agreements to cooperatively manage nuclear risks—and encourage others to do the same. For example, the opportunity to poison negotiations and publicly pin blame for failure on an opponent has often been tempting enough to derail nascent attempts at cooperation. Such temptations should be avoided.
- Tailor agreements and any corresponding verification regimes so that they are invasive enough to detect cheating in a timely fashion but not so invasive that they become intelligence collection activities that generate relative advantage.

## Additional recommendations

This project also draws on the history presented below, as well as international relations theory (see appendix) to offer two additional sets of recommendations—one at the strategic level and the other focused on tactical-level diplomacy—that bookend these core recommendations.

When approaching the overall topic of cooperative strategies for nuclear risk management at the strategic level, senior officials should keep the following four principles in mind. Although they do not prescribe specific actions, returning periodically to these principles can help policy-makers evaluate options and frame decisions as they survey the landscape of nuclear cooperation challenges and opportunities:

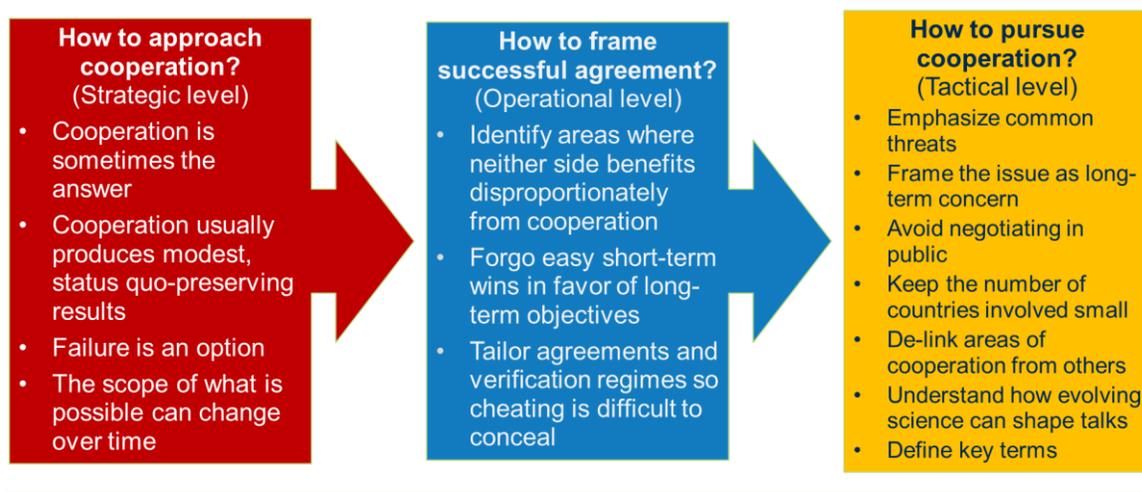
- Cooperation is sometimes the answer.
- Cooperation usually produces modest results by preserving the status quo balance of advantage.
- Failure is an option.
- The scope of what is possible can change over time.

Similarly, as they *pursue* cooperation with a rival to manage a specific nuclear risk, the following diplomatic tactics may help policy-makers improve their odds of achieving a meaningful and enduring agreement:

- Emphasize common threats.
- Frame the issue as a long-term problem.
- Avoid negotiating in public.
- Keep the number of countries involved small.
- De-link areas of possible cooperation from other issues.
- Understand how scientific uncertainty or evolving science can shape negotiations.
- Define key terms to clarify positions and limit misunderstandings.

The project's recommendations are summarized in Figure 1.

Figure 1. Recommendations in brief



Source: CNA.

Although near-term prospects for US cooperation with either Russia or China—let alone both—in the nuclear field appear very dim, there is no reason to assume that this will remain true forever.

Against this background, this report provides concrete recommendations for US officials looking to identify and seize opportunities for security-enhancing nuclear cooperation. It aims to ensure that the US government is prepared to employ the full range of potential strategies—cooperative as well as competitive—to secure and advance US national interests.

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# Introduction

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Speaking before the United Nations in September 1987, President Ronald Reagan observed, “How quickly our differences worldwide would vanish if we were facing an alien threat from outside this world,” before going on to ask, “Is not an alien force already among us? What could be more alien to the universal aspirations of our peoples than war and the threat of war?”<sup>4</sup> For Reagan, this argument was not merely abstract. He saw nuclear weapons as the most alien threat of all and was determined to end the threat that they posed to human civilization.<sup>5</sup>

Nearly a year earlier, Reagan’s Reykjavik summit with his Soviet counterpart, Mikhail Gorbachev, had ended in failure but not before coming tantalizingly close to an agreement in principle to eliminate all nuclear weapons within 10 years. Within three months of his UN speech, Reagan and Gorbachev would meet again to sign the landmark Intermediate-range Nuclear Forces Treaty—the world’s first agreement to dismantle an entire class of nuclear weapons. Far from being abstract, Reagan’s musings before the United Nations reflected his visceral belief that great power cooperation to manage nuclear risks was as essential as it was difficult.<sup>6</sup>

He was neither the first nor the last president to confront this challenge. This report explores how three earlier Cold War presidents attempted to work with their Soviet counterparts to control the arms race and reduce the risk of nuclear war. These examples—from the 1950s and 1960s, before the era of formal bilateral nuclear arms control treaties—show how top leaders wrestled with issues that were fundamental, existential, and still novel.

## Research question

This study’s objective is to help improve the efficacy of US policy-makers’ efforts to manage nuclear risks cooperatively with the US’ great power rivals, Russia and China. It asks, “When

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<sup>4</sup> Ronald Reagan, “Address to the 42nd Session of the United Nations General Assembly in New York, New York,” (Sept. 21, 1987), <https://www.reaganlibrary.gov/archives/speech/address-42d-session-united-nations-general-assembly-new-york-new-york>.

<sup>5</sup> See, for example, James Mann, *The Rebellion of Ronald Reagan: A History of the End of the Cold War* (New York: Penguin Books, 2010).

<sup>6</sup> See, for example, his representations to Gorbachev at Reykjavik. Svetlana Savranskaya and Tom Blanton, “The Reykjavik File: Previously Secret Documents from US and Soviet Archives on the 1986 Reagan-Gorbachev Summit,” National Security Archive, Oct. 13, 2006, <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB203/>.

and how can competing great powers cooperatively manage the risks associated with nuclear use and proliferation?”<sup>7</sup>

## Research approach

This project combines theory with evidence from key historical episodes to help contemporary policy-makers find practical ways to enhance US security by cooperatively managing nuclear risks. It proceeded in five basic steps.

First, we reviewed the international relations theory literature on why and how states cooperate with one another in the international system. This literature review provided an important conceptual foundation for the empirical research that followed. Its results are detailed in the appendix.

Second, we thoroughly reviewed US nuclear policy history to identify the universe of possible cases for study. Because the target audience for this research is US policy-makers, this US-centric approach seemed sensible. The resulting universe included all significant instances in which the US attempted to cooperate with a great power rival to enhance nuclear security—both successes and failures.

Third, we selected specific cases for study. Case selection decisions were informed by the need to select cases of both successful and failed great power nuclear cooperation and by the resources available for the project. “Success” means that two great powers reached some overt or tacit agreement to cooperate in the nuclear sphere and are abiding by it. “Failure” means that no such agreement was struck or that it fell apart.

On this basis, we selected three cases—one a success (the US-Soviet agreement on North Atlantic Treaty Organization (NATO) nuclear sharing that led to the Non-Proliferation Treaty (NPT)), one an immediate failure (Eisenhower’s Open Skies proposal), and one that began as a success before ending in failure (the nuclear test moratorium). Collectively these three cases—well documented in the primary and secondary literature—were good sources of data on the drivers of success and failure in great power nuclear cooperation.

Fourth, we reviewed the secondary literature on each case, followed by primary source documents. The objective was to understand each case in all its historical complexity. To that

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<sup>7</sup> An alternative formulation, “Why and how can great powers engage in arms control?” would be functionally identical under Schelling and Halperin’s broad definition of arms control: “All the forms of military cooperation between potential enemies in the interest of reducing the likelihood of war, its scope and violence if it occurs, and the political and economic costs of being prepared for it.” However, because arms control has developed a narrower meaning in common usage, the above framing seemed clearer, if wordier. See Thomas Schelling and Morton Halperin, *Strategy and Arms Control* (New York: Brassey’s, 1985), p. 2.

end, we compiled a timeline for each, noting along the way (1) when factors that the international relations literature on cooperation flags as important appeared to be in operation, (2) when other factors appeared to be at work, and (3) how these different factors interacted to drive success or failure in each case.

Fifth, we employed structured, focused comparison to generate cross-cutting and generalizable insights from all three of the cases. We asked seven questions drawn from theory about each case and tabulated the results:

1. Was this attempt at cooperation a case of success or failure?
2. Did US officials believe that cheating would be easy and concealable?
3. Did cooperation seem likely to generate relative advantage for one side?
4. Were senior US officials focused primarily on long-term (years or decades) challenges, as opposed to short-term concerns?
5. Did both potential cooperators believe that they faced a common threat or challenge?
6. Was the US interagency supportive of cooperation, opposed, or divided?
7. Were more than two states primarily responsible for the success or failure of the proposed cooperative arrangement?

Applying structured, focused comparison builds on past efforts to understand US-Soviet arms control. However, this study improves on these past efforts by asking (1) fewer questions and (2) simpler questions with (in principle) straightforward yes or no answers. This parsimony makes the research process more transparent and the conclusions more traceable.<sup>8</sup>

After applying this approach to all three cases selected for study, it became clear that three variables that US officials can manipulate were critically important across cases and primarily responsible for driving outcomes.<sup>9</sup> The following were these critical drivers of success and failure:

1. Relative advantage—whether policy-makers perceive that cooperation would leave either great power better or worse off with respect to each other.

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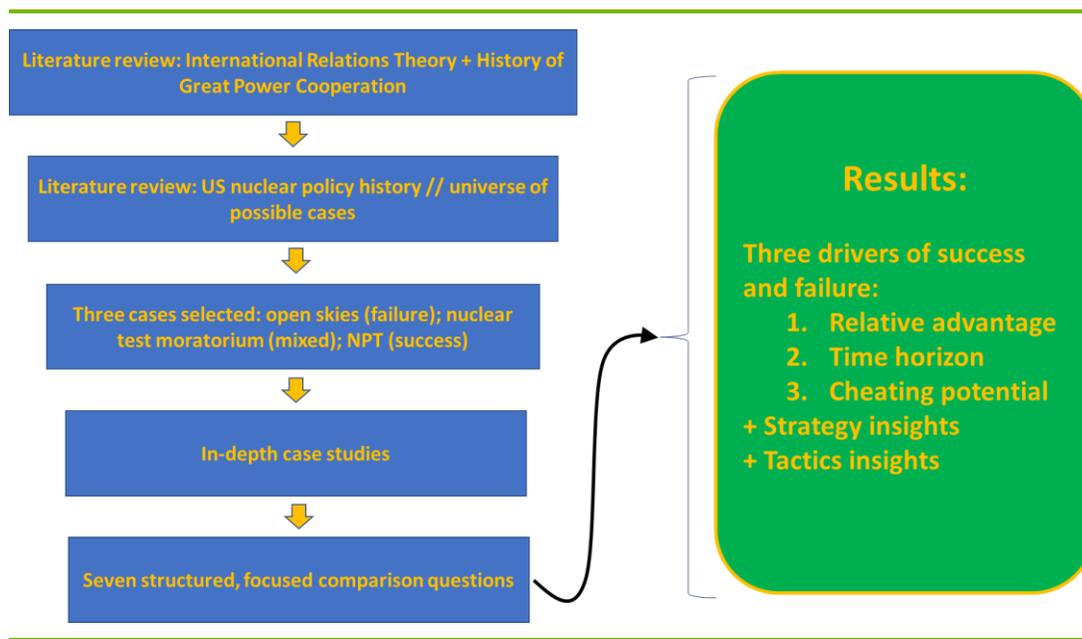
<sup>8</sup> For theoretical background, see the appendix. For past application of structured, focused comparison, see section III and appendix of Alexander George, Philip Farley, and Alexander Dallin, eds., *US-Soviet Security Cooperation: Achievements, Failures, Lessons* (New York: Oxford University Press, 1988). Authors in this volume attempted to answer 11 questions, each of which had several sub-questions and few of which were amenable to a clear, straightforward answer.

<sup>9</sup> We down-selected to these three variables from the original seven because they (1) reliably covaried with observed success versus failure and (2) did not consistently covary with one another or the other four hypothesized explanatory variables.

2. Time horizons—whether policy-makers are willing to forgo easy short-term benefits to cooperatively pursue an objective or mitigate a threat that lies years or decades in the future.
3. Cheating—whether the details of a cooperation arrangement are such that the potential costs and risks of being caught are perceived to outweigh the benefits to either side of cheating.

These findings led to a series of lessons for policy-makers. The primary lessons are three overarching recommendations centered on the variables listed above. We also offer two additional sets of findings—one at the strategic level and the other focused on the tactical level of diplomacy—that bookend these overarching findings. Figure 2 outlines the research approach for this study.

Figure 2. Research approach



Source: CNA.

## Organization of the paper

This paper is organized as follows. One section each is devoted to in-depth examinations of each of the three cases—Eisenhower’s 1955 Open Skies proposal, the 1958–1961 nuclear test moratorium, and the 1964–1966 US-Soviet negotiations on NATO nuclear sharing that led to the NPT. The paper concludes with findings and recommendations, and an appendix provides a review of the relevant academic literature.

# Eisenhower's Open Skies Proposal – Immediate Failure

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Just after 4:30 p.m. on July 21, 1955, President Eisenhower proposed a sweeping initiative whereby the US and USSR would mutually take steps that would reduce the risk of World War III. He was speaking at a summit meeting in Geneva, where the leaders of France, Britain, and the Soviet Union had gathered to try to end or at least curtail the Cold War. Washington and Moscow, he proposed, should

give each other a complete blueprint of our military establishments, from beginning to end...[Next, they should] provide within our countries facilities for aerial photography of the other country...and by this step to convince the world that we are providing as between ourselves against the possibility of great surprise attack.<sup>10</sup>

At the 6:00 p.m. buffet dinner, Soviet premier Nikita Khrushchev approached Eisenhower to reject the proposal out of hand: “The Soviet reaction, as expressed by Khrushchev, was 100% negative.”<sup>11</sup> On August 4, in a speech before the Supreme Soviet, Premier Nikolai Bulganin made that rejection official.<sup>12</sup>

Why did Eisenhower's pitch fail so rapidly and completely? Two of the three factors that typically drive the failure of great power nuclear cooperation augured against the success of Open Skies.

- Relative advantage: America was an open society. The locations and general functions of its military facilities were well known—including to the Soviet Union. In contrast, the US had a comparatively poor understanding of the USSR's military facilities.<sup>13</sup>

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<sup>10</sup> Telegram From the Delegation at the Geneva Conference to the Department of State, July 21, 1955, Foreign Relations of the United States (FRUS) 1955-1957, vol. 5, doc. 221, <https://history.state.gov/historicaldocuments/frus1955-57v05/d221>.

<sup>11</sup> Memorandum of the Conversation at the Buffet, Palais des Nations, Geneva, July 21, 1955, 6 p.m., FRUS 1955-1957, vol. 5, doc. 222, <https://history.state.gov/historicaldocuments/frus1955-57v05/d222>. It is unclear why dinner was served so early.

<sup>12</sup> “Address by the Soviet Premier (Bulganin) to the Supreme Soviet [extract],” Aug. 4, 1955, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), p. 496.

<sup>13</sup> US reconnaissance planes could skirt the Soviet border to collect radio emissions and take slant photographs of the Soviet Union but had limited visibility into the USSR's vast interior. The U-2 spy plane, which would later fly directly over Soviet territory, would take its maiden flight in August 1955.

Therefore, by accepting Eisenhower's Open Skies proposal, the USSR would have been giving up more militarily useful information than it gained.

- Time horizon: US and Soviet diplomatic maneuvering in Geneva was aimed at securing short-term wins in propaganda, or world public opinion, not on achieving durable security or stability gains for the long term.
- Ability to conceal cheating: Because Eisenhower's proposal was straightforward, cheating—denial of overflight rights—would have been easy to detect. This could have enabled cooperation but for the other headwinds that the Open Skies proposal faced.

## The run-up to the Geneva Summit

To understand Eisenhower's failed Open Skies proposal, it helps to understand the context in which the idea developed. In 1955, nuclear weapons and the arms race were just a decade old. Still new, both were evolving rapidly, if on uncertain trajectories. On one hand, the Korean War was over. Stalin was dead, and a new cadre of Soviet leaders led by Nikita Khrushchev seemed open to ratcheting down East-West tensions. The Cold War had not yet ossified into the (seemingly) permanent standoff between armed camps that it would later become. On the other hand, the US and Soviet nuclear arsenals were rapidly growing in size and capability. Both nations had by then developed hydrogen bombs that dwarfed "mere" atomic weapons in their destructive power. These fearsome new thermonuclear weapons only made the arms race more dangerous and controlling it more important. Certainly, no world leader or serious person was naïve about the prospects for peace. But the prospect of an eventual thaw in the Cold War seemed real and important enough that senior officials could talk about the problem of disarmament seriously and without embarrassment.

Then there was the question of how to pursue arms control or disarmament. For political leaders at the time, a four-power summit—the US, Soviet Union, United Kingdom (UK), and France—was the clear way forward. Just 10 years earlier, these four powers had prevailed together in World War II. After the war they had sought to ensure a lasting peace by establishing (along with China) the United Nations. In addition, they were already cooperating to end the postwar occupation of Austria and (divided) Germany—which they concluded in spring 1955. Thus, 10 years into the nuclear age, the notion that a face-to-face meeting among the leaders of these four major nations was the right way to tackle weighty issues such as arms control and disarmament on a global scale was so reasonable as to be obvious.

## The genesis of Open Skies

Momentum toward a four-power summit began to build as early as 1953, when British prime minister Winston Churchill proposed the idea. For Eisenhower, however, the clamor for a summit—which soon spread to other allies and their publics—was somewhat awkward. Although he sought peace, he worried that the calls for arms control or disarmament that were associated with the proposed summit could be used to chip away at the US military advantage over the Soviet Union—especially in nuclear arms. For Eisenhower, because nuclear weapons provided so much “bang for the buck,” they helped keep the Soviets at bay at a cost that would not undercut the health of the US economy or transform the US into a garrison state.<sup>14</sup> This was the basis for the administration’s New Look defense policy, by which the US would rely heavily on nuclear weapons to deter conventional aggression. Thus, Eisenhower could not appear “senselessly stubborn” by not participating meaningfully and constructively in a four-power summit, but in so doing, he could not compromise US security by giving up hard-won advantages in the nuclear field.<sup>15</sup> This was a thin line to walk.

Despite Eisenhower’s hesitation, support for a summit continued to grow. Allies, the American people, and world public opinion placed pressure on the Eisenhower Administration that by spring 1955 had become irresistible.<sup>16</sup> This was the context for the Open Skies proposal. If Eisenhower had to participate in a four-power summit, he would try to make the most of it.

Against this background, the origins of Open Skies can be traced to a February 1955 National Security Council (NSC) meeting. In a discussion of US policy on arms control and disarmament, the president outlined the root of his concerns.

Every time recently that the subject of disarmament had come up in conversation, he was reminded of the fate of Carthage. The Roman invaders had by false promises induced the citizens of Carthage to surrender their arms. The moment these arms were surrendered, the Roman legions attacked the city.<sup>17</sup>

Put another way, Eisenhower was concerned about the problem of relative material gains and losses in the US-Soviet competition. He had to do something constructive on disarmament, or

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<sup>14</sup> See Report to the National Security Council by the Executive Secretary (Lay), Oct. 30, 1953, FRUS 1952-1954, vol. 2, part 1, doc. 101, <https://history.state.gov/historicaldocuments/frus1952-54v02p1/d101>.

<sup>15</sup> Quote from Eisenhower instructions to Secretary of State Dulles on holding the planned summit. Jean Edward Smith, *Eisenhower in War and Peace* (New York: Random House, 2012), p. 664.

<sup>16</sup> See Robert A. Divine, *Eisenhower and the Cold War* (Oxford: Oxford University Press, 1981), pp. 116-117; David Tal, “Eisenhower’s Disarmament Dilemma: From Chance for Peace to Open Skies Proposal,” *Diplomacy and Statecraft* 12, no. 2 (2007); Smith, *Eisenhower in War and Peace*, pp. 663-665.

<sup>17</sup> Memorandum of Discussion at the 236th Meeting of the National Security Council, Washington, February 10, 1955, FRUS 1955-1957, vol. 20, doc. 7, <https://history.state.gov/historicaldocuments/frus1955-57v20/d7>.

he would be tarred as an enemy of peace. But he mistrusted the Soviets just as the Carthaginians should have mistrusted the Romans. Faced with this conundrum, Secretary of State John Foster Dulles offered that most common of suggestions: form a committee to study the problem. Posing his advice as a question during the February 1955 NSC meeting, Dulles inquired, "Should further review of US disarmament policies be conducted under the direction of a person of outstanding qualifications...[and advised by an individual from] each concerned agency (State, Defense, AEC)?" Eisenhower readily agreed. "Certainly, disarmament was a subject with which some one exceptional brain ought to occupy itself exclusively. This was one of the most important fields in the entire government."<sup>18</sup> With that decision, the path toward the Open Skies proposal was opened.

The following month, Eisenhower appointed former Minnesota governor Harold Stassen his special assistant on disarmament with cabinet rank. Publicly billed as the "Secretary of Peace," Stassen was a puzzling choice. Formerly Eisenhower's rival for the 1952 Republican presidential nomination, Stassen does not appear to have possessed the "outstanding qualifications" that Eisenhower seemed to think the job required.<sup>19</sup> Stassen would remain engaged in the development of Eisenhower's disarmament efforts through the upcoming Geneva conference.

Although Stassen was the public face of these efforts, the actual Open Skies proposal came from a parallel effort led, at Eisenhower's request, by then special assistant for foreign affairs Nelson Rockefeller.<sup>20</sup> Rockefeller's team came much closer to the "outstanding qualifications" standard set by Eisenhower and Dulles. Perhaps unsatisfied by Stassen's progress and motivated to respond to a Soviet disarmament proposal in May, the president asked Rockefeller to develop a US counter. The June conference that he convened at the Marine Corps base in Quantico, Virginia, included 11 leading specialists "knowledgeable in many fields

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<sup>18</sup> Memorandum of Discussion at the 236th Meeting of the National Security Council.

<sup>19</sup> Divine, *Eisenhower and the Cold War*, p. 118.

<sup>20</sup> For Stassen's 15-minute photo opportunity appointment with Eisenhower, see Report of a Conference Between the President and His Special Assistant (Stassen), White House, Washington, March 22, 1955, 12:10-12:25 p.m., FRUS 1955-1957, vol. 20, doc. 17, <https://history.state.gov/historicaldocuments/frus1955-57v20/d17>. For development of and NSC discussions of "the Stassen plan," see, for example, Progress Report Prepared by the President's Special Assistant (Stassen), May 26, 1955, FRUS 1955-1957, vol. 20, doc. 33, <https://history.state.gov/historicaldocuments/frus1955-57v20/d33>; Memorandum of Discussion at the 250th Meeting of the National Security Council, Washington, May 26, 1955, FRUS 1955-1957, vol. 20, doc. 34, <https://history.state.gov/historicaldocuments/frus1955-57v20/d34>; Progress Report Prepared by the President's Special Assistant (Stassen), June 23, 1955, FRUS 1955-1957, vol. 20, doc. 40, <https://history.state.gov/historicaldocuments/frus1955-57v20/d40>.

important to the American-Soviet struggle” from government as well as such places as MIT, SAIS, RAND, and the Brookings Institution.<sup>21</sup>

During six days of meetings, the panelists explored “methods of exploiting Communist bloc vulnerabilities at this crucial state of world affairs” leading into the four-power summit. Their most innovative suggestion for actions that the US should take during the conference was to propose “a convention insuring [sic] the right of aircraft of any nationality to fly over the territory of any country for peaceful purposes.”<sup>22</sup> This was not the Open Skies proposal in its final form, but it was certainly the seed of the idea.

The June 10, 1955, conclusion of the Quantico meeting marked the beginning of a policy horse race in Washington. It was the Quantico group’s plan against Stassen’s ambitious but naïve plan to establish an international armaments commission that would have, among other things, overseen the “leveling off” of all arms production, including nuclear weapons; maintained a “supervised stockpile” of fissile material to be used for peaceful purposes; and conducted inspections to verify states’ compliance with agreed limitations.<sup>23</sup>

Stassen’s proposal combined some of the more ambitious elements of the post-World War II Baruch Plan, such as international control of atomic energy, with the then-new International Atomic Energy Agency’s mandate to enable peaceful uses of atomic technology, with the inspection-intensive Conventional Forces in Europe Treaty that would not be established for more than 30 years. It encountered strong headwinds.<sup>24</sup> Although Stassen surely did not plan it this way, the audacity of his proposal probably made the concept of mutual overflight that evolved into Open Skies seem modest and reasonable by comparison.

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<sup>21</sup> Letter From the Chairman of the Quantico Vulnerabilities Panel (Rostow) to the President's Special Assistant (Rockefeller), June 10, 1955, FRUS 1955-1957, vol. 5, doc. 134, <https://history.state.gov/historicaldocuments/frus1955-57v05/d134>; Robert A. Strong, *Decisions and Dilemmas: Case Studies in Presidential Foreign Policy Making Since 1945* (Armonk Press, 2005), p. 31.

<sup>22</sup> Letter From the Chairman of the Quantico Vulnerabilities Panel (Rostow) to the President's Special Assistant (Rockefeller), June 10, 1955.

<sup>23</sup> For Stassen plan, see Progress Report Prepared by the President's Special Assistant (Stassen), June 23, 1955. For debate, see, for example, Memorandum of Discussion at the 253d Meeting of the National Security Council, Washington, June 30, 1955, FRUS 1955-1957, vol. 20, doc. 45, <https://history.state.gov/historicaldocuments/frus1955-57v20/d45>.

<sup>24</sup> Draft Memorandum by the Secretary of State, June 29, 1955, FRUS 1955-1957, vol. 20, doc. 43, <https://history.state.gov/historicaldocuments/frus1955-57v20/d43>; Memorandum From the Secretary of Defense (Wilson) to the President, June 28, 1955, FRUS 1955-1957, vol. 20, doc. 42, <https://history.state.gov/historicaldocuments/frus1955-57v20/d42>.

## A modest proposal

The four-power summit in Geneva took place from July 18 to 23, 1955. While Stassen continued trying to refine his own plan and coordinate with allies in the run-up, Eisenhower considered whether to spring the Open Skies proposal at the summit, and if so, how.<sup>25</sup> His lead-up to the proposal was cautious and oblique.

Eisenhower first broached the topic of Open Skies on the second day of the conference, over breakfast with UK prime minister Harold Macmillan, the leader of America's closest ally. Referencing the advantage Russia had in shaping world opinion thanks to its "simplified 'Ban the bomb' motto," they agreed that "we should propose consideration of a limited test or inspection plan in connection with the forces in opposition to each other in Europe." In addition, the American and British leaders concurred that the chief problem with the Russian proposal was the "incompleteness and inadequacy of the inspection system." Therefore, a more thorough system of inspections would be required to back any arms control or disarmament measure that might emerge, to deter or detect cheating. In response, and foreshadowing Open Skies, "The President said he would be agreeable to some plan including all of our installations," even by "mutual overflights of the two countries, Russia and the United States." Referencing the relative advantage implications of such a proposal, Eisenhower explained that because Russia already knew where US military installations were, "He did not feel there would be anything lost to us in such a connection."<sup>26</sup>

Eisenhower's exchange with Macmillan revealed much about how he was thinking about the disarmament problem and the diplomatic maneuvering surrounding it. An inspection regime adequate to catch cheating would be an essential part of any agreement. At the same time, because inspections were designed to reveal useful information, they might have relative advantage implications. The US would gain more from mutual overflights than would Russia. Consequently, proposing such a regime would be to the advantage of the US. If the Russians accepted it, the US would gain information useful for, among other things, nuclear targeting. If the Russians rejected it, then they would appear stubbornly unwilling to pursue the cause of peace.

Having sounded out his ally Macmillan on what would become the Open Skies proposal over breakfast, Eisenhower turned to his old comrade in arms Marshal Georgy Zhukov over lunch. As chief of the Soviet general staff during World War II, Zhukov had been Eisenhower's ally,

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<sup>25</sup> Letter From the President's Special Assistant (Stassen) to the Secretary of State, July 11, 1955, FRUS 1955-1957, vol. 5, doc. 152, <https://history.state.gov/historicaldocuments/frus1955-57v05/d152>.

<sup>26</sup> Memorandum of the Conversation at the President's Breakfast, President's Villa, Geneva, July 20, 1955, 8:30 a.m., FRUS 1955-1957, vol. 5, doc. 199, <https://history.state.gov/historicaldocuments/frus1955-57v05/d199>.

partner, and wartime friend. With Zhukov now serving as Soviet defense minister, Eisenhower hoped to trade on their relationship from the last war now that both had new political roles.<sup>27</sup>

After reviewing the course of US-Soviet relations, exchanging earnest wishes to improve them, and discussing the problems of overcoming the mutual suspicion engendered by opposing military blocs, Eisenhower raised the question of inspection.

You could not inspect everything and if, in the United States, we wished to hide five hundred atomic bombs, no inspector could find them and the Soviet Union could do likewise, but nevertheless large installations such as airfields, long-range bombers and guided missile factories could not be hidden....The President then inquired whether such inspection would be politically possible in the Soviet Union. Marshal Zhukov said it would be entirely possible and while its detail should be studied, he was, in principle, in full agreement with the President's remarks.<sup>28</sup>

On one hand, Eisenhower now had support, in principle, for pursuing mutual inspection of large installations from both his British allies and a senior representative of his Soviet adversary. On the other hand, his representation of his thinking to Zhukov had not included the concept of overflight. This was no accident. Although he never explained himself, Eisenhower was likely trying to maneuver the Soviets into the disadvantageous diplomatic position of potentially rejecting a proposal that they had initially favored. Eisenhower's sleight of hand in laying out that proposal was the sort of detail that he knew would be overlooked in the court of public opinion. By "negotiating in public," Eisenhower was teeing up a small short-term propaganda gain for the US. At the same time, this did not undermine the sincerity of the proposal. For Eisenhower, Soviet acceptance of Open Skies would have been a true triumph—a long-time-horizon path toward improved US-Soviet relations and a safer world on terms favorable to the US.<sup>29</sup>

Henceforth the road to making a public pitch for Open Skies was wide open. That evening, Stassen—now an Open Skies supporter who had arrived from Paris that morning—provided Eisenhower with draft remarks for the following day.<sup>30</sup> Secretary of State Dulles informed the

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<sup>27</sup> Smith, *Eisenhower in War and Peace*, p. 667.

<sup>28</sup> Memorandum of the Conversation at the President's Luncheon, President's Villa, Geneva, July 20, 1955, 12:30 p.m., FRUS 1955-1957, vol. 5, doc. 203, <https://history.state.gov/historicaldocuments/frus1955-57v05/d203>.

<sup>29</sup> For concurrence on Eisenhower's sincerity, see, for example, John L. Gaddis, "Evolution of a Reconnaissance Satellite Regime," in *US-Soviet Security Cooperation: Achievements, Failures, Lessons*, ed. Alexander George, Philip Farley, and Alexander Dallin (New York: Oxford University Press, 1988), p. 355; David Tal, "From the Open Skies Proposal of 1955 to the Norstad Plan of 1960: A Plan Too Far," *Journal of Cold War Studies* 10, no. 4 (2008); Smith, *Eisenhower in War and Peace*, p. 670n.

<sup>30</sup> Memorandum for the Record of a Meeting of the Delegation at the Geneva Conference, President's Villa, Geneva, July 20, 1955, 6 p.m., FRUS 1955-1957, vol. 5, doc. 208, <https://history.state.gov/historicaldocuments/frus1955-57v05/d208>.

State Department of the president's impending proposal.<sup>31</sup> And just after 4:30 p.m. on July 21, Eisenhower stood in the Palais des Nations in Geneva. Addressing himself "for a moment principally to the Delegates from the Soviet Union," Eisenhower proposed that "we begin an arrangement, very quickly...to give each other a complete blueprint of our military establishments....Next, to provide within our countries facilities for aerial photography to the other country." Closing his remarks, Eisenhower observed that

the quest for peace is a statesman's most exacting duty.... A sound peace—with security, justice, well-being, and freedom for the people of the world—*can* be achieved, but only by patiently and thoughtfully following a hard and sure and tested road.<sup>32</sup>

And then the room went dark. A tremendous thunderstorm had added to the dramatic effect of the president's proposal. Laughter filled the hall when Eisenhower commented that he "didn't know I would put the lights out with that." It seemed initially that the Open Skies proposal had been well received.<sup>33</sup>

## Getting to *nyet*

That impression did not last. Approaching Eisenhower at the dinner buffet soon after the meeting's conclusion, Soviet premier Nikita Khrushchev rejected the Open Skies proposal, explaining that it "would merely mean that the intelligence services of the two countries would have confirmation of the present fragmentary information they possessed." Reversing his earlier position, Marshal Zhukov "who then joined the group, said that as a military man he associated himself with the statements of Khrushchev."<sup>34</sup> Three weeks later, Soviet premier Nikolai Bulganin amplified Khrushchev's rejection of Open Skies in a speech before the Supreme Soviet.<sup>35</sup> Undeterred, the US in subsequent weeks would attempt to pick up the thread

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<sup>31</sup> Memorandum of a Conversation, Palais des Nations, Geneva, July 21, 1955, 2:30 pm., FRUS 1955-1957, vol. 5, doc. 220, <https://history.state.gov/historicaldocuments/frus1955-57v05/d220>.

<sup>32</sup> Telegram From the Delegation at the Geneva Conference to the Department of State, July 21, 1955.

<sup>33</sup> Telegram From the Delegation at the Geneva Conference to the Department of State, July 21, 1955.

<sup>34</sup> Memorandum of the Conversation at the Buffet, Palais des Nations, Geneva, July 21, 1955, 6 p.m. It is worth noting that given his position within the Soviet government, Zhukov likely had very little choice in the matter.

<sup>35</sup> Address by the Soviet Premier (Bulganin) to the Supreme Soviet [extract], Aug. 4, 1955, p 496.

by sending the Soviets a formal written proposal on Open Skies.<sup>36</sup> But the Soviets rejected that too.<sup>37</sup>

## Structured, focused analysis

Addressing all the study's driving questions helps to summarize a complex history and identify concrete lessons for policy-makers.

### **Was Open Skies a case of successful or failed great power nuclear cooperation?**

Failure—the US and Soviet Union did not agree to cooperatively manage nuclear risk in this instance. Nearly 40 years later the 1992-2021 Open Skies treaty built on Eisenhower's idea, but these events fall outside the scope of this case. Regardless they are an example of how a near term failure can lay groundwork for future success, and how success is not necessarily permanent.

### **Did US officials believe that cheating would be easy to hide?**

No. Failure to abide by the agreement would have taken the form of rejection of flight plans or denial of essential ground services for inspection aircraft. These actions would have been instantly recognizable and easy to respond to by reciprocation.

### **Did cooperation seem likely to generate relative advantage for one side?**

Yes. In internal US discussions as well as in his discussion with UK prime minister Macmillan, Eisenhower observed that the US stood to gain more information about the Soviet military from Open Skies than the USSR stood to gain about the US. This information would have been transformed into military benefits for the US because it would have been used to support nuclear targeting.

### **Were senior US officials focused primarily on long-term (years or decades) challenges, as opposed to short-term concerns?**

No. From the perspective of overall national policy, Eisenhower was sincere in his desire to improve US-Soviet relations and reduce nuclear risk. However, events surrounding the Geneva

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<sup>36</sup> "United States Outline Plan for the Implementation of President Eisenhower's Aerial Inspection Proposal, Submitted to the Disarmament Subcommittee," Aug. 30, 1955, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), pp. 501-503.

<sup>37</sup> "Letter From the Soviet Premier (Bulganin) to President Eisenhower," Sept. 19, 1955, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), pp. 516-521.

Summit and the Open Skies proposal suggest a focus on near-term gain. Specific examples include the secrecy surrounding the development of the Open Skies proposal, Eisenhower's diplomatic sleight of hand with Zhukov, and the dramatic way that he surprised the Soviets and the world with his sweeping proposal.

### **Did both potential cooperators believe that they faced a common threat or challenge?**

No. Both regarded one another as the main adversary.

### **Was the US interagency supportive of cooperation, opposed, or divided?**

The decision to pitch Open Skies was closely held within the senior reaches of the Eisenhower Administration, and the decision to proceed with it was probably not taken until the conference itself. Interagency coordination was therefore limited. However, to the extent that it took place, the Open Skies proposal was supported.

### **Were more than two states primarily responsible for the success or failure of the proposed cooperative arrangement?**

No. The proposal was specifically tailored to include only the US and Soviet Union. US NATO allies were not subject to overflight—a serious problem from Moscow's perspective—and therefore would not have been able to exercise a veto. Although Eisenhower consulted with the UK before making his pitch, only the US and the Soviet Union would have been responsible for its success or failure.

## **Why did Open Skies fail?**

Eisenhower's Open Skies proposal failed because two of the three key factors that enable great power nuclear cooperation were not aligned toward that end. First, relative advantage was clearly at stake. As Eisenhower said, the US had far more to gain from a mutual overflight regime than the Soviet Union did because the locations of key US military facilities were well known whereas the Soviet locations were not.

Second, at the Geneva Summit, Eisenhower negotiated in public to achieve a short-term propaganda win, which undermined his pursuit of a long-term stabilizing agreement on mutual overflight. Although he surely would have stuck by his Open Skies proposal had the Soviets accepted it, Eisenhower's speech and actions before and during the summit—the secrecy leading up to the proposal, his sleight of hand with Zhukov—were all aimed at achieving short-term gains at the expense of the long-term US-Soviet relationship.

Turning to the third key factor in great power nuclear cooperation, the simplicity of Eisenhower's proposal would have made detecting cheating very easy—which would have been essential to its success. Noncompliance by either side would have been immediately obvious: rejection of a flight plan, denial of access to airport ground facilities for inspecting aircraft, or similar. Had the Soviets somehow been convinced to go along with the Open Skies proposal in 1955, this characteristic would have left both sides confident that they could positively identify and respond to cheating before that cheating led to inordinate national security harm.

# The Eisenhower-Kennedy Nuclear Test Moratorium – Success then Failure

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For nearly three years between November 1958 and September 1961, the US and the Soviet Union suspended nuclear testing. The basic goal was to use the pause, or moratorium, to negotiate a permanent test ban and thereby curtail the arms race. Without testing, the argument went, nuclear weapons technology could advance no further, and arms competition would level off. For two and a half years, two US administrations—Republican Eisenhower and Democrat Kennedy—pursued this objective with their Soviet counterparts.

Yet by spring 1961, it was increasingly clear that a permanent test ban agreement was impossible. Moscow resolutely opposed Washington's demands for an invasive inspection regime to detect cheating. But Washington's evolving scientific understanding of nuclear testing and seismology suggested that cheating would be easier to conceal than had been widely supposed in 1958. The growing realization that a permanent comprehensive test ban was out of reach changed the rules of the game. Now each side worked subtly to wriggle out of the test moratorium while trying to ensure that its opponent would be smeared with the blame for its collapse.

Why did the test moratorium, which began with such high hopes, endure across two administrations and then collapse with a wheeze? All three of the factors that drive success and failure in great power cooperative nuclear risk management were at work, contributing to the moratorium's initial success and ultimate failure.

- Relative advantage: When the Soviet Union first proposed the test moratorium, there was no expert consensus on whether it would be advantageous or disadvantageous to the United States.
- Time horizon: The moratorium was initially envisioned as a first step toward a permanent nuclear test ban. Both superpowers entered the moratorium focused on a long time horizon.
- Ability to conceal cheating: When the moratorium began, the scientific consensus in the US was that means could be developed to reliably detect nuclear explosions with few if any on-site inspections by using seismographs. Thus, cheating would be difficult to conceal.

Between November 1958 and spring 1961, all three of these conditions changed. As Soviet policy became more bellicose (especially with respect to the status of West Berlin—a Western-controlled enclave isolated deep inside Soviet-controlled East Germany), the perceived value

of resumed nuclear testing increased for Washington. Likewise, against the background of the rapidly unfolding Berlin crisis and the increasingly intractable problem of verification, the leaders of both the US and Soviet Union shifted their focus from the potential long-term benefits of a permanent test ban to the near-term benefits of resuming testing while assigning blame for the collapse of the moratorium to the other. Finally, new information—including information from extremely low-yield nuclear tests that at least violated the moratorium’s spirit—suggested that the US would need to demand more on-site inspections than the Soviets were prepared to tolerate.

## The Soviet proposal and getting to yes

The test moratorium began with a Soviet initiative. In March 1958, Moscow announced its intention to halt nuclear testing, conditional on US and British reciprocation.<sup>38</sup> The Central Intelligence Agency had anticipated Moscow’s overture for months, and its timing was significant. It came immediately after a recent Soviet test series but before an upcoming US series.<sup>39</sup> Insofar as both superpowers had settled into a repetitive cycle of planning and preparation, nuclear testing, data analysis, and renewed preparation, Moscow’s announcement was timed to its own short-term advantage. Although nuclear testing and the arms race were long-term concerns for both sides, that did not stop Moscow from issuing its proposal at an advantageous time.

Moscow made the first move, but parallel thinking about the benefits of a test ban had been percolating in Washington as well. In January 1958, “Secretary of Peace” Harold Stassen was still doggedly searching for a path toward disarmament. That month he proposed developing nuclear test “control posts” equipped with seismic, electromagnetic, and acoustic sensors that could detect nuclear explosions. The pitch—his last before resigning—was panned by Atomic Energy Commission (AEC) chair Lewis Strauss and Secretary of State John Foster Dulles. Once billed as a “person of extraordinary qualifications,” Stassen had become a pariah within the administration. He quit the next month. Ironically, his resignation likely opened the door to more serious US consideration of the Soviet moratorium proposal by officials—such as Dulles—who would not have wanted to associate themselves with Stassen’s views.<sup>40</sup>

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<sup>38</sup> David M. Blades and Joseph Siracusa. *A History of US Nuclear Testing and Its Influence on Nuclear Thought, 1945-1963* (Rowman and Littlefield, 2014), ch. 4.

<sup>39</sup> Benjamin Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban, 1945-1963* (Stanford University Press, 2007), p. 142.

<sup>40</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, pp. 138-140; Editorial Note, FRUS 1958-1960, vol. 3, doc. 140, <https://history.state.gov/historicaldocuments/frus1958-60v03/d140>.

One of the chief questions connected to a possible test ban was whether it would help the US keep its nuclear edge over Russia. A March 21, 1958, memorandum from the deputy secretary of defense to a panel on nuclear test cessation chaired by atomic scientist Hans Bethe laid out the terms of the debate.

Estimates indicate that at present and also as of the end of 1958, the United States possesses an advantage in yield versus weight ratios, in flexibility of applications, in the economy of use of special nuclear materials and possibly in knowledge of weapons effects of a specialized nature. It is reasonable to assume that with the continuation of testing, the gap will be narrowed [between the US and USSR].<sup>41</sup>

However, cessation of testing would force the US to limit its nuclear research and abort certain programs. Consequently, the memo argued that a test moratorium “will operate to the distinct disadvantage of the United States” unless it is a “positive and integral part of more comprehensive measures” and verified by an “agreed and implemented control system.”<sup>42</sup> The question of relative advantage, the connection between test cessation and a long-term relaxation of tensions, and the problem of verification were all in the mix even before Moscow made its overture.

Moscow delivered its proposal on March 31, 1958. As of that date, the USSR “decided to discontinue unilaterally...tests of any kind of atomic and hydrogen weapons” and called on the US and Great Britain to do the same.<sup>43</sup> Eisenhower’s famous temper was on display in his reaction to Moscow’s overture.

It seems peculiar [he wrote] that the Soviet Union, having just concluded a series of tests of unprecedented intensity, should now, in bold headlines, say that it will not test again, but add, in small type, that it may test again if the United States carries out its already long announced and now imminent series of tests.<sup>44</sup>

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<sup>41</sup> Memorandum From the Deputy Secretary of Defense (Quarles) to the Chairman of the Ad Hoc Panel on Nuclear Test Cessation (Bethe), Mar. 21, 1958, FRUS 1958-1960, vol. 3, doc. 144, <https://history.state.gov/historicaldocuments/frus1958-60v03/d144>.

<sup>42</sup> Memorandum From the Deputy Secretary of Defense (Quarles) to the Chairman of the Ad Hoc Panel on Nuclear Test Cessation (Bethe), Mar. 21, 1958.

<sup>43</sup> “Decree of the Supreme Soviet Concerning the Discontinuance of Soviet Atomic and Hydrogen Weapons Tests,” Mar. 31, 1958, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), pp. 978-980; “Letter From the Soviet Premier (Khrushchev) to President Eisenhower on Nuclear Tests,” Apr. 4, 1958, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), pp. 980-982.

<sup>44</sup> “Letter From President Eisenhower to the Soviet Premier (Khrushchev) on Nuclear Tests,” Apr. 8, 1958, in *Documents on Disarmament 1945-1959* (US Department of State, 1960), pp. 982-985.

Irrespective of Eisenhower's anger, debate within the administration about the merits of a test moratorium continued.<sup>45</sup> A memorandum from Secretary of State Dulles to Eisenhower summarized a growing consensus that "only by concrete actions can we counteract the false picture, all too prevalent abroad, of the United States as a militaristic nation." Against this background, "Nuclear testing was recognized to be a key to progress in this direction. So long as we continue to insist upon our freedom to test, the wide opposition to our position shields the Soviet Union from pressure to agree to positive US proposals."<sup>46</sup>

Ultimately, Eisenhower proceeded with that long-planned round of nuclear testing—HARDTACK I—in the South Pacific that spring and summer. Yet in a hint that he was intrigued by the test moratorium proposal, he directed the AEC to expand the number of tests involved in HARDTACK I, anticipating that he might announce a testing pause afterward. If the US was going to let up on its nuclear testing program, the labs had to generate as much testing data as possible while they still could.<sup>47</sup>

That summer, during HARDTACK I's final days, Eisenhower's advisors discussed what the US should do about the test moratorium.<sup>48</sup> The president made his decision on August 18, 1958—the final day of testing. During a White House meeting, all the relevant actors had their final say. For the Department of Defense (DOD) and the military services, Deputy Secretary of Defense Donald Quarles explained that a test suspension would be "disadvantageous militarily...unless the political advantages of the proposal outweigh the military disadvantage." The president's science advisor, James Killian, demurred that given the US lead in nuclear technology, a test pause would advantage the US. After highlighting that "disagreement as to

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<sup>45</sup> See, for example, Memorandum of Discussion at the 361st Meeting of the National Security Council, Apr. 3, 1958, FRUS 1958-1960, vol. 3, doc. 148, <https://history.state.gov/historicaldocuments/frus1958-60v03/d148>; Memorandum of Conversation, Apr. 8, 1958, Subject: Meeting with the Disarmament Advisers, FRUS 1958-1960, vol. 3, doc. 150, <https://history.state.gov/historicaldocuments/frus1958-60v03/d150>; Memorandum of Conversation, Apr. 11, 1958, Subject: Report on Disarmament and Inspection by President's Science Advisory Committee, FRUS 1958-1960, vol. 3, doc. 151, <https://history.state.gov/historicaldocuments/frus1958-60v03/d151>; Memorandum of Conference with President Eisenhower, Apr. 17, 1958, FRUS 1958-1960, vol. 3, doc. 154, <https://history.state.gov/historicaldocuments/frus1958-60v03/d154>, and following.

<sup>46</sup> Memorandum From Secretary of State Dulles to President Eisenhower, Apr. 30, 1958, FRUS 1958-1960, vol. 3, doc. 155, <https://history.state.gov/historicaldocuments/frus1958-60v03/d155>.

<sup>47</sup> Blades and Siracusa, *A History of US Nuclear Testing*, ch. 4; Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, p. 160.

<sup>48</sup> See, for example, Memorandum of Conversation, Aug. 8, 1958, Subject: Proposed U.S. Policy on Nuclear Testing, FRUS 1958-1960, vol. 3, doc. 166, <https://history.state.gov/historicaldocuments/frus1958-60v03/d166>; Memorandum of Telephone Conversation Between Secretary of State Dulles and the Under Secretary of State (Herter), Aug. 14, 1958, FRUS 1958-1960, vol. 3, doc. 169, <https://history.state.gov/historicaldocuments/frus1958-60v03/d169>; Memorandum of Conversation, Aug. 15, 1958, Subject: U.S. Policy on Nuclear Tests, FRUS 1958-1960, vol. 3, doc. 170, <https://history.state.gov/historicaldocuments/frus1958-60v03/d170>.

the balance of advantage is an element in the whole argument” and that some moratorium opponents were focused only on military or technical matters and not “the question of world political position,” Eisenhower gave his assent to a modestly revised version of the State Department’s moratorium proposal.<sup>49</sup> He announced his decision four days later, with a plan to begin the moratorium just over two months later, on October 31.<sup>50</sup>

Yet US-Soviet agreement that a moratorium was desirable did not actually constitute a moratorium agreement. Instead, both sides, in the spirit of getting nuclear test data while they could, carried out further tests before the moratorium was fully instantiated on November 3, 1958. On the US side, HARDTACK II included tests designed to test seismographs’ ability to distinguish underground nuclear explosions from small earthquakes. The tests concluded just before the planned October 31 start of the moratorium. Likewise, Moscow conducted 17 tests in September and October 1958, followed by 2 additional tests on November 1 and 3. Eisenhower overlooked these technical breaches of the moratorium agreement not only because he hoped that the Soviets would stop testing but also because he saw that “the urgent testing up to October 31 had been so intense that there had been more testing than thinking.”<sup>51</sup>

## Verifying a ban

Through seven months of maneuvering, negotiating, and spasmodic testing, Washington and Moscow had cobbled together a provisional test moratorium. Neither side was sure what would come of it. Ideally (or perhaps idealistically), it would lead to a permanent agreement that would curtail the nuclear arms race. To that end, talks underway in Geneva continued with renewed vigor. But to make such an ambitious deal stick, both sides would need to verify that the other was not cheating. Of course, this was well understood in the White House before the moratorium took effect. However, now that the pause was in place, the verification problem became more pressing.

At the same time, new information drove the belief that verifying a test ban could be harder than previously suspected. By early January 1959, the analysis that followed each round of nuclear tests was wrapped up for HARDTACK II. The results were discouraging. During a meeting with Eisenhower, science advisor James Killian explained that “new data on

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<sup>49</sup> Memorandum of Conference with President Eisenhower, Aug. 18, 1958, FRUS 1958-1960, vol. 3, doc. 172, <https://history.state.gov/historicaldocuments/frus1958-60v03/d172>.

<sup>50</sup> “Statement by President Eisenhower: Experts’ Report on Detection of Nuclear Tests,” Aug. 22, 1958, in *Documents on Disarmament, 1945-1959* (US Department of State, 1960), pp. 1111-1112.

<sup>51</sup> See Blades and Siracusa. *A History of US Nuclear Testing*, ch. 4; Memorandum of Conversation Between President Eisenhower and Secretary of State Dulles, Nov. 3, 1958, FRUS 1958-1960, vol. 3, doc. 187, <https://history.state.gov/historicaldocuments/frus1958-60v03/d187>.

underground tests indicates that the threshold of detectability is in the order of 20 KT rather than 5KT.” As a result, the president judged that a lasting test ban agreement with the Soviets would require “a vastly greater number of [seismic detection] stations, or exclusion of weapons up to 20 KT from the scope of the treaty.”<sup>52</sup> The earlier confidence that a simple test ban could be designed to ensure that cheating would be detected was eroding in the face of the HARDTACK II test data.

Consequently, the scientific question of test ban verification began to shape the negotiations. As Secretary of State Dulles delicately explained in a January 30 cable to his chief test ban negotiator in Geneva, “There is growing apprehension in informed private circles...lest these suspension-of-test negotiations involve us in agreements which are far from being fool proof so far as inspection and controls are concerned.”<sup>53</sup> In that same cable, Dulles outlined his desire to force “the Soviets to show their hand with respect to controls” to understand how fiercely they would resist US efforts to establish “control posts” in the USSR staffed by American inspectors, visit suspected test sites, and take other invasive steps to guard against the risk of Soviet cheating.

Two weeks later, State Department official Douglas Dillon provided a compact summary of the evolving US position during a White House meeting. In response to the question of whether the US aim in Geneva was a propaganda victory or the achievement of a test suspension agreement, Mr. Dillon replied:

(a) At the outset, we wanted an agreement if the Russians would meet us on controls and inspection [for verification]. We have now come to feel that the Russians will not sign an agreement acceptable to us. (b) Data which we have learned since the Geneva technical negotiations last summer [from HARDTACK II], if known then, might have led us to avoid undertaking the negotiation of a treaty....(c) Therefore, propaganda has now moved into the ascendancy and our future tactics will seek to prevent the Russians from putting on us the onus for failure of the treaty negotiations.<sup>54</sup>

Dillon’s presentation captured two of the factors driving great power nuclear cooperation. First, the new HARDTACK II data suggested that cheating would be easier to conceal than previously believed. Second, given the new US assessment that a long-term test ban was unreachable, policy-makers’ focus shifted to the short-term goal of avoiding blame for the

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<sup>52</sup> Memorandum of Conference with President Eisenhower, Jan. 5, 1959, FRUS 1958-1960, vol. 3, doc. 190, <https://history.state.gov/historicaldocuments/frus1958-60v03/d190>. See also Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, p. 183.

<sup>53</sup> Telegram From the Department of State to the Consulate General in Geneva, Jan. 30, 1959, FRUS 1958-1960, vol. 3, doc. 196, <https://history.state.gov/historicaldocuments/frus1958-60v03/d196>.

<sup>54</sup> Memorandum of Meeting, Feb. 12, 1959, FRUS 1958-1960, vol. 3, doc. 199, <https://history.state.gov/historicaldocuments/frus1958-60v03/d199>.

negotiations' failure and ideally casting the USSR as the unreasonable, inflexible "enemy of peace" that torpedoed the talks.

## Staggering into the next administration

Despite this inauspicious turn, both sides kept the negotiations going. In so doing, they exhibited considerable flexibility in their negotiating positions. Their willingness to continue talking certainly reflected the desire to paint the other side as inflexible and unreasonable in service of short-term propaganda goals. However, it may also have reflected lingering hope that a durable test ban was still somehow possible.

On the US side, this flexibility manifested on April 13, 1959. After months of deadlock on verification, the US proposed a ban on only atmospheric tests as an interim step.<sup>55</sup> An atmospheric test ban would be far easier to verify than a more comprehensive ban that included underground tests. Rejecting this offer as "deceptive to the world," Soviet leader Nikita Khrushchev countered 10 days later with an offer to allow on-the-ground inspections as part of test ban verification, albeit limited by a to-be-negotiated quota system.<sup>56</sup> This was progress, but it did not alter the underlying fact that finding a mutually acceptable underground test ban verification system remained the negotiations' central problem.

The persistent absence of meaningful progress on this front through the summer led to a hardening of the Eisenhower Administration's stance on testing in the fall.<sup>57</sup> Although DOD and the AEC had long been test ban skeptics, by October 1959, even the State Department was beginning to come around to this view. In an October 6, 1959, meeting of principals on the

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<sup>55</sup> James H. Lebovic, *Flawed Logics: Strategic Nuclear Arms Control from Truman to Obama* (Johns Hopkins University Press, 2013), p. 35. Note that Eisenhower may also have been making a virtue of necessity. Rising public consciousness of the harmful environmental and health effects of atmospheric testing was making the practice increasingly unpopular. See Memorandum of Conversation, May 5, 1959, Subject: U.S. Position in Geneva Nuclear Test Negotiations, FRUS 1958-1960, vol. 3, doc. 216, <https://history.state.gov/historicaldocuments/frus1958-60v03/d216>.

<sup>56</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, pp. 186-187.

<sup>57</sup> In August 1959, the US agreed to extend the moratorium through the end of 1959 to avoid truncating the Geneva negotiations prematurely. The USSR reciprocated, agreeing to extend the moratorium as long as the US and UK refrained from testing. It had previously been slated to end on October 31, 1959—one year after the initial declaration. See "Statement by the Department of State: Extension of Voluntary Suspension of Nuclear Weapons Tests," Aug 26, 1959, and "Statement by the Soviet Government Regarding Continued Suspension of Nuclear Weapons Tests," Aug. 28, 1959, in *Documents on Disarmament: 1945-1959* (US Department of State, 1960), pp. 1439-1441. Even the US-Soviet summit held in Washington and at Camp David in late September was insufficient to break the impasse, with the Soviet foreign minister showing zero flexibility and Soviet premier Nikita Khrushchev showing only a minimal willingness to reconsider the USSR's position on the nationalities of the notional "control post" staff members. See Editorial Note, FRUS 1958-1960, vol. 3, doc. 231, <https://history.state.gov/historicaldocuments/frus1958-60v03/d231>.

Geneva negotiations, then undersecretary of state Douglas Dillon explained that “the Department of State has given a good deal of thought to this matter....We would not want to allow the negotiations to proceed past December 31 without some decisive action lest we allow the Soviet Union to have a de facto uncontrolled cessation of nuclear tests.”<sup>58</sup> The fear that Moscow might *already* be cheating, ironically, reinforced the US desire for an invasive inspection system that the Soviet Union would never accept.

This line of reasoning—the need to either resume testing or reliably verify Soviet non-testing—led Eisenhower to pursue what was supposed to be a last-ditch negotiating strategy. He proposed a series of technical discussions between US and Soviet experts, leveraging the data gleaned from HARDTACK II, to help the Soviets understand the US demands in the field of inspection. The president’s assumption was that the Soviets would reject the technical talks offer out of hand, possibly opening the door to a narrower ban on nuclear tests in the atmosphere and outer space.

To Eisenhower’s surprise, however, the Soviets accepted the overture. Yet the informed, technical back-and-forth among neutral scientists that he had hoped for did not occur, with the Soviet scientists having been instructed to ignore, dispute, or reject evidence that suggested the need for an intrusive inspection regime.<sup>59</sup> As a result, the technical talks were a frustrating failure.

At the end of the year, the agreed extended test moratorium expired, but it nevertheless remained in place, with Eisenhower adopting the policy (mirroring the Soviet position since August) that the US was free to test but would continue to abstain.<sup>60</sup> On February 11, following the utter failure of the technical talks, he held a press conference proposing a more modest test ban. This ban would limit underground tests to a seismic (vice explosive yield) threshold of under 4.75 on the Richter scale and would ban atmospheric and outer space nuclear tests. The following month, Khrushchev countered by accepting the outlines of the US proposition and further suggesting an unverified ban on smaller (sub 4.75 Richter) nuclear tests that would endure for four to five years. When Eisenhower signed on to the unverified ban but for only

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<sup>58</sup> Memorandum of Conversation, Oct. 6, 1959, Subject: Meeting of Principals: Geneva Nuclear Test Negotiations, FRUS 1958-1960, vol. 3, doc. 232, <https://history.state.gov/historicaldocuments/frus1958-60v03/d232>.

<sup>59</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, pp. 196-199; Memorandum of Conference with President Eisenhower, Dec. 29, 1959, FRUS 1958-1960, vol. 3, doc. 238, <https://history.state.gov/historicaldocuments/frus1958-60v03/d238>.

<sup>60</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, p. 202. Note that this public stance elided the fact that in October Eisenhower had approved a series of nuclear tests that would result in less than 1 pound of TNT nuclear yield to take place in January. It is unclear whether the purpose of these tests was to improve weapons’ safety and reliability or to support US research into whether “decoupling” underground nuclear tests could stymie test ban verification efforts. See Blades and Siracusa. *A History of US Nuclear Testing*, ch. 4; Michael R. Gordon, “Eisenhower Approved Small Atomic Experiments amid Test Moratorium,” *New York Times*, Feb. 28, 1987.

two years, he once again extended the moratorium, leaving its fate in the hands of whoever won the upcoming 1960 presidential election.<sup>61</sup>

## Limping toward collapse

The election was on November 8, 1960. John F. Kennedy won. On the campaign trail, he publicly committed himself to making “one last effort” to secure a verifiable test ban agreement.<sup>62</sup> Privately, he wrote to Eisenhower on March 30, 1960, pledging that he would “undertake to carry out in good faith any moratorium extending beyond your term of office which you now decide to be in the best interest of the nation.”<sup>63</sup> Yet he faced strong pressures to resume testing. In what amounted to a shot across the president-elect’s bow, two days after the election, AEC commissioner Robert Wilson delivered a speech arguing for “the need for the early resumption of underground nuclear weapons tests.”<sup>64</sup>

Ignoring this pressure, Kennedy turned his attention to the test ban question soon after taking office. Within a week of inauguration, he appointed respected lawyer, banker, and sometime government official John J. McCloy his “advisor on the problems of disarmament and arms control, including the nuclear test bans.” Given McCloy’s stature, his appointment underlined Kennedy’s belief that disarmament, arms control, and the test ban talks were “of the highest priority...firmly linked to our foreign policies, to our national security, and to our desire for peace.”<sup>65</sup>

Although Kennedy approached the test ban talks with new enthusiasm and a new cast of advisors, the basic underlying issues remained unchanged. As under Eisenhower, the question of inspections remained the central focus of the talks. The key scientific question was how many inspections per year were necessary to guarantee that Moscow was not clandestinely

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<sup>61</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, pp. 207-211.

<sup>62</sup> Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, p. 233.

<sup>63</sup> Quoted in Greene, *Eisenhower, Science Advice, and the Nuclear Test Ban*, p. 226. Bernard J. Firestone further observes that in addition to having Kennedy’s support, the test moratorium had accumulated enough bureaucratic inertia by the end of the Eisenhower Administration to enable its survival into the early Kennedy Administration. See Bernard J. Firestone, *The Quest for Nuclear Stability: John F. Kennedy and the Soviet Union* (Westport, CT: Greenwood Press, 1982), pp. 75-77.

<sup>64</sup> Robert E. Wilson, “The Need for the Early Resumption of Underground Nuclear Weapons Tests,” *Proceedings of the American Philosophical Society* 105, no. 2 (1961).

<sup>65</sup> Letter From President Kennedy to His Adviser on Disarmament (McCloy), Jan. 27, 1961, FRUS 1961-1963, vol. 7, doc. 2, <https://history.state.gov/historicaldocuments/frus1961-63v07/d2>.

testing. The key political questions were how many inspections the Soviets might agree to and whether that number would be enough to convince a skeptical Senate to ratify the treaty.<sup>66</sup>

In the background—as under Eisenhower—was a growing American concern about Soviet clandestine testing during the moratorium. In late April, the intelligence community delivered a report on “the possibility of Soviet nuclear testing during the moratorium.” It concluded that the Soviets were unlikely to have tested because “the political costs of exposure have probably been regarded by the Soviets as high enough to deter them from any kind of nuclear testing.”<sup>67</sup> Despite this reassurance, the possibility of future cheating—which could have implications for the relative balance of power between the superpowers—remained salient in Kennedy Administration decision-making.

The next month, May 1961, NSC staffer Robert Komer explained to his boss, National Security Advisor McGeorge Bundy, that “to me the guts of the military case is not that we gain so much from testing, but that if we do not do so we run a growing risk of Soviet clandestine testing, which could result in a growing security disadvantage.”<sup>68</sup> Although at the beginning of the moratorium US expert opinion had been divided on its relative advantage implications, a growing fear of Soviet cheating was tilting the debate in favor of moratorium opponents.

Thus, the test moratorium was already terminally ill when Kennedy’s Soviet counterpart, Nikita Khrushchev, dealt it a fatal blow during their early June 1961 meeting in Vienna. The main topic of discussion was Berlin. Since 1958, Khrushchev had been threatening off and on to deny the West access to its sector of that city, located deep inside Soviet-controlled East Germany. At Vienna, Khrushchev renewed this threat, displaying a level of belligerence that led Kennedy to declare after the fact that the summit had been the “roughest thing in my life.”<sup>69</sup> Yet Khrushchev’s intransigence was not confined to Berlin. On a possible test ban treaty, he took a hard line, insisting on a cap of three inspections per year. Given Washington’s suspicions of Moscow, no deal was possible on those terms. As Kennedy explained to congressional leaders upon his return to the US, “The main question now was how to disengage from these

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<sup>66</sup> See, for example, AEC chairman Glenn Seaborg’s diary excerpted in Editorial Note, FRUS 1961-1963, vol. 7, doc. 4, <https://history.state.gov/historicaldocuments/frus1961-63v07/d4>; Airgram from the Department of State to the Consulate General in Geneva, Mar. 8, 1961, FRUS 1961-1963, vol. 7, doc. 6, <https://history.state.gov/historicaldocuments/frus1961-63v07/d6>, and following.

<sup>67</sup> Special National Intelligence Estimate, Apr. 25, 1961, FRUS 1961-1963, vol. 7, doc. 17, <https://history.state.gov/historicaldocuments/frus1961-63v07/d17>.

<sup>68</sup> Memorandum from Robert W. Komer of the National Security Council Staff to the President’s Special Assistant for National Security Affairs, May 19, 1961, FRUS 1961-1963, vol. 7, doc. 25, <https://history.state.gov/historicaldocuments/frus1961-63v07/d25>.

<sup>69</sup> Frederick Taylor, *The Berlin Wall: A World Divided, 1961-1989* (Harper Collins Publishers, 2006), p. 129.

negotiations....how to break it off so that the Soviets would seem to be responsible.”<sup>70</sup> With the long-term goal of a durable test ban out of reach, the president’s planning horizon had collapsed, and now his focus was on the short-term mechanics of securing a propaganda win.

From there the administration began to move to unravel the moratorium. Two days after the president’s return from Vienna, Secretary of State Dean Rusk wrote to the US ambassador in Moscow. He suggested that the US, UK, and France immediately propose a ban on atmospheric and underwater nuclear tests: “This would put the Soviets in a position of turning down a reasonable proposal...and if they did resume testing in the atmosphere the onus would fall on them.” Furthermore, looking ahead to the resumption of testing in the West, he explained that “if we do resume testing ourselves, I suggest that even if the tests are generally known we do not either deny or admit them but stick completely to the ‘no comment’ position.”<sup>71</sup> In July, Defense Secretary Robert S. McNamara recommended that the US “initiate preparations to resume nuclear weapons testing” because “the chances are substantial that such one-sided testing [by the Soviets alone] would lead to grave consequences for the security of the US and her allies.”<sup>72</sup>

On August 30, 1961, the Soviet Union made the first move, publicly announcing its plans to resume nuclear testing. Having anticipated this development, the White House promptly released a statement condemning the decision.<sup>73</sup> Moscow conducted its first post-moratorium test two days later, on September 1, 1961.<sup>74</sup> The US followed suit two weeks later, on September 15, initiating the NOUGAT series of underground tests.<sup>75</sup> And so ended the 1958–1961 nuclear test moratorium.

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<sup>70</sup> Memorandum of Conversation, June 6, 1961, FRUS 1961-63, vol. 7, doc. 32, <https://history.state.gov/historicaldocuments/frus1961-63v07/d32>.

<sup>71</sup> Memorandum From the Ambassador to the Soviet Union (Thompson) to Secretary of State Rusk, June 8, 1961, FRUS 1961-1963, vol. 7, doc. 33, <https://history.state.gov/historicaldocuments/frus1961-63v07/d33>.

<sup>72</sup> Letter From Secretary of Defense McNamara to the President’s Adviser on Disarmament (McCloy), July 28, 1961, FRUS 1961-1963, vol. 7, doc. 47, <https://history.state.gov/historicaldocuments/frus1961-63v07/d47>.

<sup>73</sup> Editorial Note, FRUS 1961-1963, vol. 7, doc. 58, <https://history.state.gov/historicaldocuments/frus1961-63v07/d58>.

<sup>74</sup> Blades and Siracusa, *A History of US Nuclear Testing*, ch. 4.

<sup>75</sup> Blades and Siracusa. *A History of US Nuclear Testing*, ch 5. Blades and Siracusa note that the series was not very useful from a scientific or technical perspective because it was assembled on short notice and not well instrumented.

## Structured, focused analysis

Addressing all of the study's driving questions helps to summarize a complex history and identify concrete lessons for policy-makers.

### **Was the nuclear test moratorium a case of successful or failed great power nuclear cooperation?**

Both. Moscow made the first move toward cooperation with its March 31, 1958, proposal. Both countries, however, continued to squeeze in last-minute tests along the way to the pause, which "officially" took effect November 1, 1958, and actually took effect two days later thanks to Eisenhower's willingness to overlook the Soviet Union's last test. This marked the beginning of a successful, concrete cooperative effort between the superpowers to eventually ban nuclear testing and in so doing curtail the arms race.

Superficially, this cooperative effort held together until the collapse of the moratorium in September 1961. In truth, actual cooperative work between the US and Soviet Union to negotiate an enduring test ban had been seriously weakened by the results of HARDTACK II, which suggested that cheating might be easy to conceal absent an invasive inspection regime. Yet the death knell for cooperative pursuit of a test ban was the acrimonious June 1961 Kennedy-Khrushchev Vienna Summit. From Vienna on, the aim of the test ban negotiations in Geneva became competitive, with both sides trying to assign blame for their inevitable failure to the other.

### **Did US officials believe that cheating would be easy to hide?**

Initially no and then yes. When the US entered into the test moratorium, much of the scientific/technical and policy communities were optimistic that a test ban could be verified via the deployment of enough seismic sensors, correctly located. This optimism was not universal. There were verification skeptics, but they were concentrated in the AEC and DOD—both organizations with an interest in continued testing. Therefore, following the unpopular Harold Stassen's departure from the scene, these skeptics' views could be discounted without embarrassment.

However, by January 1959, when the results of the HARDTACK II nuclear test series were in, this initial optimism began to fade. This last series of pre-moratorium tests suggested that cheating would be easier to conceal than previously believed. The only remedy was to insist on many in-person inspections of suspected test sites. This US requirement was a nonstarter for Moscow and ultimately led to the moratorium's collapse.

### **Did cooperation seem likely to generate relative advantage for one side?**

Yes. Given the US lead over the Soviet Union in nuclear weapons technology, the US stood to benefit more from a test moratorium or ban than Moscow. Such a ban would have halted Moscow's progress, allowing Washington to preserve its edge. Therefore, it is puzzling that the Soviets initiated the proposal in the first place. However, from an American perspective, cooperating with the adversary in agreeing to the moratorium and pursuing a subsequent nuclear test ban made good sense.

### **Were senior US officials focused primarily on long-term (years or decades) challenges, as opposed to short-term concerns?**

At first yes and then no. Eisenhower and Kennedy Administration officials, including the presidents themselves, initially viewed the prospect of a test ban as a way of moderating or stopping the nuclear arms race. This long-term perspective helped the US (and USSR) break out of an ongoing cycle of nuclear tests. Eisenhower's willingness to forgo a response to Moscow's final nuclear test, which took place after the scheduled moratorium, is a good example. However, as the challenge of verification became clearer and as Soviet foreign policy took on a more belligerent tone, Kennedy adopted a shorter term perspective aimed at extracting the US from the test moratorium while assigning blame for its failure to Moscow.

### **Did both potential cooperators believe that they faced a common threat or challenge?**

No. Both regarded one another as the main adversary.

### **Was the US interagency supportive of cooperation, opposed, or divided?**

Initially supportive and then opposed. Despite some debate about both verification and the relative advantage implications of a test ban, the consensus in the Eisenhower and early Kennedy Administrations was that the test moratorium was a sensible first step toward a long-term negotiated test ban. However, consensus support for the test moratorium began to fray soon after its onset when the results of the HARDTACK II series came out and further eroded as the Geneva negotiations stalled and Khrushchev adopted a harder line on Berlin early in the Kennedy Administration.

### **Were more than two states primarily responsible for the success or failure of the proposed cooperative arrangement?**

No. Although the UK was a party to the test pause and longer term test ban treaty talks, it was a junior partner to the US and not principally responsible for either the success or failure of the negotiations.

## Why did the nuclear test moratorium succeed—and then fail?

The Eisenhower-Kennedy nuclear test moratorium held together and then fell apart because of changes in the values of the three drivers of success or failure that enable or prevent great power nuclear cooperation. First, for the US, accepting the Soviets' 1958 overture seemed like a reasonable step given the obvious political benefits and uncertain relative advantage implications in the military sphere. However, as the moratorium endured, US officials' sensitivity to the risk of Soviet clandestine testing grew more acute. This eroded administration support for the moratorium—even before Vienna—because of the fear that Soviet cheating could harm the relative position of the US in the arms race.

Second, and arguably most important, the US agreed to the moratorium when the best available evidence suggested that monitoring Soviet compliance with a future test ban treaty would be straightforward. New data from HARDTACK II undermined this belief. However, by that point, it would have been difficult for the US to withdraw from the negotiations. The only reasonable path forward was to design an inspection regime, based on the latest evidence, that would provide a strong guarantee against cheating. Unfortunately, such a regime proved too invasive for the Soviets to tolerate.

Third, both Eisenhower and Kennedy initially understood the test moratorium as a stepping stone toward the long-term goal of curtailing the nuclear arms race. That is, both initially resisted the temptation to rack up a short-term propaganda win by, for example, condemning Soviet intransigence on inspections in order to keep pursuing the long-term objective of a verifiable test ban. This remained the basic US policy across both administrations until Kennedy's return from Vienna. After Vienna, however, Khrushchev's belligerence suggested that continued pursuit of this objective was a fool's errand. Consequently, Kennedy shifted his focus to the short-term tactics of withdrawing from the moratorium and assigning blame for its collapse to the Soviets.

# The NPT Nuclear Sharing Agreement – Success

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The 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is arguably the most successful instance of great power nuclear cooperation in history. It may never be exceeded.

From one perspective, the NPT was a grand bargain between the nuclear haves and have-nots. The treaty's five "legal" nuclear weapons states would share the peaceful benefits of nuclear technology, including nuclear power and medical uses. They also committed to make good faith efforts toward eventual disarmament. In exchange, most of the world's countries agreed to forgo nuclear weapons.

Yet the NPT was also a conspiracy of sorts: the world's two nuclear great powers collaborated to legitimize their own nuclear status while denying the obvious security benefits of the bomb to others—especially their own allies.<sup>76</sup>

Brazen though it was, the NPT was effective. It helped reduce nuclear risk by capping the number of fingers on the proverbial red button.

How did Washington and Moscow pull off such a "grand conspiracy" in non-proliferation despite the failure of far less ambitious cooperative ventures—including Open Skies and a nuclear test ban agreement—in the recent past? The critical period was from fall 1964 through late 1966, when the two sides reached agreement that the US policy of sharing nuclear weapons with NATO allies would be allowed under an NPT. This agreement was the essential first step that opened the door to the successful conclusion of the NPT.<sup>77</sup>

What was this agreement on US-NATO nuclear sharing about? Since the mid-1950s, the US had forward deployed nuclear weapons to the territories of NATO allies. These were nominally under US control but in practice available for allied use in case of Soviet invasion.<sup>78</sup> In addition, by the early 1960s, the US and NATO were pursuing an alternative nuclear sharing approach—first called a Multi-Lateral Force (MLF) and later, under a UK proposal, an Atlantic Nuclear

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<sup>76</sup> For good overviews of this aspect of US non-proliferation policy, see Francis J. Gavin, "Strategies of Inhibition: U.S. Grand Strategy, the Nuclear Revolution, and Nonproliferation," *International Security* 40, no. 1 (2015); Nicholas L. Miller, *Stopping the Bomb: The Sources and Effectiveness of US Nonproliferation Strategy* (Ithaca: Cornell University Press, 2018).

<sup>77</sup> Hal Brands, "Non-Proliferation and the Dynamics of the Middle Cold War: The Superpowers, the MLF, and the NPT," *Cold War History* 7, no. 3 (2007).

<sup>78</sup> Marc Trachtenberg, *A Constructed Peace: The Making of the European Settlement, 1945-1963* (Princeton, NJ: Princeton University Press, 1999).

Force (ANF). From a Soviet perspective, neither kind of NATO nuclear force was desirable. In the context of a prospective NPT, both policies might be branded proliferation—from the US to allies—and would therefore be prohibited. Thus, the key breakthrough came in late 1966, when the Soviets softened their line on “US custodian” nuclear sharing while standing firm against a NATO nuclear force. This agreement, captured in an arduously negotiated draft of NPT Article I, was the bedrock on which the NPT was built and remained virtually unchanged from the end of 1966 until the treaty’s final signature in 1968. The 1964–1966 NATO nuclear sharing agreement was thus the foundational understanding between the US and USSR that made the NPT possible.

All three drivers of success and failure in great power nuclear risk management contributed to the NPT nuclear sharing agreement. Crucially, all three clearly and consistently pointed toward the desirability of cooperation throughout the critical 1964–1966 period when the US and USSR reached the bilateral understanding that they needed to forge ahead with the international treaty.

- Relative advantage: Neither an agreement limiting nuclear proliferation to additional countries nor the enabling US-Soviet understanding on NATO nuclear sharing had relative advantage implications for either side. This is particularly true because, from the Soviet perspective, that understanding ratified the status quo and reduced the risk of Soviet relative losses if the MLF/ANF concept subsequently reemerged. For its part, the US did not miss out on relative gains by giving up the NATO nuclear force idea because it was unlikely to contribute meaningfully to US/NATO military capabilities in Europe.
- Time horizon: Both countries took a long-term perspective on the problem of nuclear proliferation. Communist China’s October 1964 entry into the nuclear club underscored the fact that further nuclear spread would make the risk of nuclear war far more difficult for the two superpowers to control. This was the long-term danger that both sides wanted to avoid.
- Ability to conceal cheating: The agreement to preserve US custodianship over forward-deployed nuclear weapons while forswearing hardware-based nuclear sharing via an MLF/ANF-type arrangement was readily verifiable. US nuclear custodianship was the status quo in NATO, and the Soviets understood what it looked like. Reciprocally, a NATO nuclear force would have entailed standing up a complex, costly multilateral military apparatus that would have been easily visible, meaning that cheating would have been obvious.

## The Kennedy legacy, the NATO nuclear force, and Johnson's non-proliferation goals

John F. Kennedy was killed on November 22, 1963. Newly sworn in as president, Lyndon Johnson committed to carrying on with his predecessor's policies to make a traumatic succession as smooth as practicable. In the nuclear field, three ongoing efforts were salient.

One was the continued pursuit of arms control treaties, such as the Outer Space Treaty, which limited nuclear weapons in space (concluded by Johnson in 1967), and the Strategic Arms Limitation Talks (which Johnson tried but failed to begin before leaving office in 1969).

The second was the MLF, which was a concept for a fleet of NATO-crewed nuclear-armed NATO ships that would operate in the seas surrounding Western Europe. By giving NATO allies partial responsibility for actually operating the NATO nuclear deterrent on a day-to-day basis, the logic went, they would be more assured of their security. Likewise, deterrence would be strengthened because Moscow would judge that if it attacked NATO, the MLF's NATO crews would surely respond. In truth, although establishment of the MLF remained official Kennedy Administration policy until the assassination, the late president had already concluded that for operational and political reasons, it was an albatross that he would rather be rid of.<sup>79</sup> It took until after his election in his own right, in November 1964, for Johnson to understand Kennedy's perspective and arrive at the same conclusion.<sup>80</sup>

The third effort was a non-proliferation treaty. Moscow and Washington began feeling one another out on this topic in spring 1962. Directly out of the gate, two key issues that would animate the US-Soviet dialogue on NATO nuclear sharing featured prominently. One was Germany. Having fought the Germans twice in living memory, the USSR found the prospect of Germany with the bomb intolerable. Correspondingly, Soviet foreign minister Andrei Gromyko's opening gambit on the NPT would have required the denuclearization of East and West Germany and with it the unraveling of US nuclear sharing with Germany.<sup>81</sup> The other issue was the MLF. On one hand, the Soviets were set against the idea of a NATO nuclear force, in part because such a force would obviously entail German participation. On the other hand, the MLF was still nascent within NATO. Because the allies themselves were still unsure about

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<sup>79</sup> Roland Popp, "The Long Road to the NPT: From Superpower Collusion to Global Compromise," in *Negotiating the Nuclear Non-Proliferation Treaty*, ed. Roland Popp, Liviu Horovitz, and Alexander Dallin (New York: Routledge, 2017), p. 15.

<sup>80</sup> Thomas Alan Schwartz, *Lyndon Johnson and Europe: In the Shadow of Vietnam* (Cambridge, MA: Harvard University Press, 2003), pp. 40-41; Popp, "The Long Road to the NPT," p. 15.

<sup>81</sup> Popp, "The Long Road to the NPT," p. 14.

most details of the MLF, it was difficult to discuss in concrete terms with the Soviets. Consequently, these Kennedy-era US-Soviet engagements did not get far.<sup>82</sup>

Upon assuming office, Johnson took up the NPT torch. In addition to his desire to adhere to Kennedy's policies, Johnson was personally committed to the cause of reducing nuclear risk. The NPT was part and parcel of this cause.<sup>83</sup> Against this background, US-Soviet discussions on a non-proliferation agreement shuffled along for much of 1964. For example, in late February 1964, Secretary of State Dean Rusk and Soviet ambassador to the US Anatoly Dobrynin discussed a non-proliferation (or non-dissemination, as they termed it) agreement in only the most general terms. In response to a question from Rusk on an agreement's possible scope, "Dobrynin indicated that the USSR is concerned about the dissemination of nuclear weapons to Germany but was also concerned about dissemination of these weapons to any country." Gauging Soviet support for the US position, "At this point the Secretary mentioned that the primary US concern in this field is Communist China."<sup>84</sup> Both superpowers were feeling out the others' concerns, interests, and ambitions in non-proliferation.

Six months later, indications that China would soon test its first nuclear device made non-proliferation a higher priority in the US government.<sup>85</sup> An August 14, 1964, position paper on non-proliferation shared with Secretary of State Dean Rusk explained that

the detonation of a nuclear device by the Chinese Communists will place great pressure on these countries [that could plausibly produce nuclear weapons] to make a national decision to develop nuclear weapons, in some cases for reasons of security, and in other cases for reasons of prestige.<sup>86</sup>

Therefore, it argued that the US should inhibit nuclear proliferation, in part by negotiating

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<sup>82</sup> Popp, "The Long Road to the NPT," p. 14; Brands, "Non-Proliferation and the Dynamics of the Middle Cold War."

<sup>83</sup> See, for example, his closing statement at one of his first NSC meetings as president: "The greatest single requirement is that we find a way to ensure the survival of civilization in the nuclear age. A nuclear war would be the death of all our hopes and it is our task to see that it does not happen." Summary Record of the 520th Meeting of the National Security Council, Dec. 5, 1963, FRUS 1961-1963, vol. 8, doc. 150, <https://history.state.gov/historicaldocuments/frus1961-63v08/d150>.

<sup>84</sup> Memorandum of Conversation, Feb. 27, 1964, Subject: Disarmament: (1) MLF and Non-dissemination (2) Military budgets, FRUS, 1964-1968, vol. 11, doc. 13, <https://history.state.gov/historicaldocuments/frus1964-68v11/d13>. For more on US concerns about People's Republic of China proliferation, see William Burr and Jeffrey Richelson, "Whether to 'Strangle the Baby in the Cradle': The United States and the Chinese Nuclear Program, 1960-1964," *Quarterly Journal: International Security* 25, no. 3 (2000/01).

<sup>85</sup> Central Intelligence Agency, *The Chances of an Imminent Communist Chinese Nuclear Explosion*, Special National Intelligence Estimate 13-3-64, Aug. 26, 1964, <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB1/docs/doc02.pdf>.

<sup>86</sup> Draft Position Paper, Aug. 14, 1964, FRUS 1964-1968, vol. 11, doc. 44, <https://history.state.gov/historicaldocuments/frus1964-68v11/d44>.

with the Soviet Union a nuclear non-proliferation agreement open to accession of all states; and...[developing] the widest possible political consensus favorable to such a non-proliferation agreement which will make a national decision to acquire nuclear capability more difficult even before such an agreement comes into effect.<sup>87</sup>

Although these recommendations were not yet official US policy, they do illustrate two things. First, the growing priority and urgency associated with non-proliferation, and second, the understanding that US-Soviet cooperation would be key to non-proliferation success.

## The US gets serious about non-proliferation

October 1964 was an inflection point in the path toward the NPT. First, on October 14, Soviet leader Nikita Khrushchev was ousted from power. Under pressure from their Warsaw Pact allies and likely seeking to distance themselves from Khrushchev's policies, the USSR's new leaders—the Brezhnev, Kosygin, and Podgorny troika—soon adopted a hard-line stance on the NPT. The prospect of a NATO nuclear force, they argued, was “incompatible” with a non-proliferation agreement.<sup>88</sup> This placed the US in the position of choosing between supporting its allies in their own defense via the US MLF or UK ANF proposal and pursuing its non-proliferation goals.

Two days later, on October 16, 1964, the People's Republic of China (PRC) conducted its first nuclear test. For both superpowers, this test not only highlighted the dangers of proliferation but also led them to inch toward a solution. Soon after the test, Johnson's national security advisor, McGeorge Bundy, outlined the president's views, stating that

there was lots of feeling by the President that we should get a higher-level, harder look at the problem of nuclear spread—a better policy than we would be able to get by using our in-house machinery. The thought has been expressed [that] a nuclear spread task force be established. He mentioned Ros[well] Gilpatric in this regard.<sup>89</sup>

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<sup>87</sup> Draft Position Paper, Aug. 14, 1964.

<sup>88</sup> Schwartz, *Lyndon Johnson and Europe*, p. 43; Memorandum of Conversation, Dec. 5, 1964, FRUS 1964-1968, vol. 11, doc. 53, <https://history.state.gov/historicaldocuments/frus1964-68v11/d53>. This was both a change in and clarification of Soviet policy. Hal Brands argues that Khrushchev softened his stance against the MLF in March 1963 but that his foreign minister, Andrei Gromyko, failed to communicate this policy shift to his American interlocutors. In contrast, the new Soviet leadership made its anti-MLF stance crystal clear. Brands, “Non-Proliferation and the Dynamics of the Middle Cold War,” pp. 397-398.

<sup>89</sup> Editorial Note, FRUS 1964-1968, vol. 11, doc. 49, <https://history.state.gov/historicaldocuments/frus1964-68v11/d49>.

Soon to win election in his own right, Johnson was putting his own muscle into the project of non-proliferation.

The committee Johnson described—chaired by Gilpatric—was established on November 25, 1964, with a presidential mandate to “study means to prevent the spread of nuclear weapons.”<sup>90</sup> Over the next two months, the Gilpatric Committee exceeded that mandate by conducting the most thorough review of US non-proliferation policy ever undertaken. Study topics included not only means to inhibit proliferation but also whether a strong US non-proliferation policy would remain realistic or desirable.<sup>91</sup> Although the debate was wide-ranging, at the end of its work on January 21, 1965, the committee was “unanimous in its view that preventing the further spread of nuclear weapons is clearly in the national interest despite the difficult decisions that will be required.” These decisions included choices about cooperating with the Soviet adversary as well as strong-arming close allies such as Germany and Japan into forgoing the bomb.<sup>92</sup>

Correspondingly, the committee presented a series of recommendations that necessarily touched on a prospective non-proliferation agreement and the idea of a NATO nuclear force.

We should intensify our efforts for a non-proliferation [including by being] prepared to bring strong pressure on significant countries (including Germany, France, India, Japan, Israel, the UAR and Sweden) to achieve their participation....Our initiatives in this area should not wait, or be dependent upon, the resolution of any issues relating to an Atlantic nuclear force.<sup>93</sup>

For his part, Johnson did not formally endorse the committee’s findings until June 1965.<sup>94</sup> However, the timing of this formality belied the fact that he was already pushing for US-Soviet agreement on non-proliferation. During a December 1964 White House conversation with Soviet foreign minister Andrei Gromyko, Johnson “stressed the concern we had about the nuclear explosion conducted by the Chinese Communists. He said we were anxious to avoid a situation where others might follow in the footsteps of the Chinese.” Gromyko stated that his

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<sup>90</sup> National Security Action Memorandum No. 320, Nov. 25, 1964, Subject: Task Force on Nuclear Proliferation, FRUS 1964-68, vol. 11, doc. 51, <https://history.state.gov/historicaldocuments/frus1964-68v11/d51>.

<sup>91</sup> See, for example, Minutes of Discussion, Jan. 7, 1965, FRUS 1964-1968, vol. 11, doc. 60, <https://history.state.gov/historicaldocuments/frus1964-68v11/d60>; Report by the Committee on Nuclear Proliferation, Jan. 21, 1965, FRUS 1964-1968, vol. 11, doc 64, <https://history.state.gov/historicaldocuments/frus1964-68v11/d64>.

<sup>92</sup> Report by the Committee on Nuclear Proliferation, Jan. 21, 1965.

<sup>93</sup> Report by the Committee on Nuclear Proliferation, Jan. 21, 1965.

<sup>94</sup> National Security Action Memorandum No. 335, June 28, 1965, Subject: Preparation of Arms Control Program, FRUS 1964-1968, vol. 11, doc 84, <https://history.state.gov/historicaldocuments/frus1964-68v11/d84>.

government shared this desire.<sup>95</sup> However, it would be nearly another year before either the US or Moscow matched their stated desires with the modicum of flexibility on NATO nuclear sharing necessary to strike a deal.

## Engaging with the Soviets

The Eighteen Nation Disarmament Conference in Geneva was the early venue for US-Soviet engagement on a non-proliferation deal. When it reconvened following a nine-month recess in late July 1965, the US presented a draft non-proliferation treaty that staked out its desire to achieve a non-proliferation agreement without giving up the NATO nuclear force.<sup>96</sup> Subsequently, the US, UK, and Italy collaborated on another draft treaty in August, and the Soviets tabled their own in September. As if to continue the trend, at an early October 1965 meeting with Andrei Gromyko in New York, Secretary of State Dean Rusk broached the possibility of a US-Soviet joint treaty draft.<sup>97</sup> “It would be useful,” he argued, “to clear the decks of lesser problems by putting together a draft of a non-proliferation treaty containing provisions even now acceptable to both sides.” Going on to reference the long-standing impasse over MLF/ANF specifically and NATO nuclear sharing generally, Rusk suggested that they then “see if the Minister’s doubts of possible nuclear arrangements in NATO could be cleared away in private discussions.” Unpersuaded by Rusk’s suggestion that this effort could “reduce and clarify the issues,” Gromyko alluded to nuclear sharing in his response, stating that although he “appreciated the Secretary’s explanation...he did see a real difference in the respective positions on the crucial issue.”<sup>98</sup>

Later that month, the Soviet position showed its first signs of softening. During an October 29, 1965, conversation with Secretary of State Dean Rusk, Soviet ambassador Dobrynin opened the door on negotiations just a crack. Now that the relevant parties had circulated draft treaties, he observed,

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<sup>95</sup> Memorandum of Conversation, Dec. 9, 1964, Subject: U.S.-Soviet Relations, FRUS 1964-1968, vol. 11, doc. 54, <https://history.state.gov/historicaldocuments/frus1964-68v11/d54>.

<sup>96</sup> Record of Meeting of the Committee of Principals, FRUS 1964-1968, vol. 11, doc. 87, <https://history.state.gov/historicaldocuments/frus1964-68v11/d87>; Joseph Nye, “US-Soviet Cooperation in a Nonproliferation Regime,” in *US-Soviet Security Cooperation: Achievements, Failures, Lessons*, ed. Alexander George, Philip Farley, and Alexander Dallin (New York: Oxford University Press, 1988), p. 342.

<sup>97</sup> Editorial Note, FRUS 1964-1968, vol. 11, doc. 92, <https://history.state.gov/historicaldocuments/frus1964-68v11/d92>; Memorandum From Spurgeon M. Keeny, Jr., of the National Security Council Staff to the President’s Special Assistant for National Security Affairs (Bundy), Oct. 4, 1965, FRUS 1964-1968, vol. 11, doc. 98, <https://history.state.gov/historicaldocuments/frus1964-68v11/d98>.

<sup>98</sup> Memorandum of Conversation, Oct. 1, 1965, Subject: USSR Foreign Minister Gromyko’s Dinner for Secretary Rusk, FRUS 1964-1968, vol. 11, doc. 97, <https://history.state.gov/historicaldocuments/frus1964-68v11/d97>.

There have been reactivated efforts leading in the opposite direction, towards drafting plans for the creation of a NATO nuclear force....In this connection we have to emphasize once again that the plans for creating a NATO nuclear force are the main obstacle in the way of concluding an agreement on nondissemination of nuclear weapons....But if the US is really willing to prevent further spread of nuclear weapons, it would be possible to start without delay business-like negotiations.<sup>99</sup>

Skeptical, Rusk responded that this did not appear to constitute “any movement in the substance of the question.” However, as subsequent events would demonstrate, Dobrynin’s emphasis on the MLF/ANF, as well as his judicious use of the term “*further* spread,” had implicitly left open the possibility that the Soviets might accept existing NATO nuclear sharing arrangements in exchange for a pledge to kill the NATO nuclear force.<sup>100</sup>

## The rise of the Nuclear Planning Group and the demise of the NATO nuclear force

The Soviets were not the only opponents of the MLF and ANF. Within the US government, the idea had always been controversial. However, by spring 1965, the circle of NATO nuclear force supporters was rapidly shrinking. Increasingly, the dominant problem was not how to advance the concept but rather how to bury the MLF/ANF without causing a major row between the US and those allies, such as West Germany and the UK, that valued it.

MLF support was concentrated within the State Department. A group of officials—the Theologians, led by policy planning staff chief Walt Rostow and Undersecretary of State George Ball—were committed to the long-term project of European unification. They believed that standing up a multinationally crewed NATO nuclear fleet could be an important step forward for their project. Moreover, at closer range (and perhaps instrumentally), they argued that the MLF could reduce the risk of West German proliferation by treating this former foe—the Allied occupation regime there only ended in 1955—as a full partner in European security.<sup>101</sup>

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<sup>99</sup> Memorandum of Conversation, Oct. 29, 1965, Subject: Non-Proliferation, FRUS 1964-1968, vol. 11, doc. 100, <https://history.state.gov/historicaldocuments/frus1964-68v11/d100>.

<sup>100</sup> Memorandum of Conversation, Oct. 29, 1965. At least one administration official, NSC staffer Spurgeon Keeny, had already speculated that this might be the new Soviet tack. See Memorandum From Spurgeon M. Keeny, Jr., of the National Security Council Staff to the President’s Special Assistant for National Security Affairs (Bundy), Oct. 4, 1965.

<sup>101</sup> Schwartz, *Lyndon Johnson and Europe*, pp. 40-41; Brands, “Non-Proliferation and the Dynamics of the Middle Cold War,” note 39; Draft Minutes of Discussion of the Second Meeting of Committee on Nuclear Proliferation, Dec. 13, 1964, FRUS 1964-1968, vol. 11, doc. 56, <https://history.state.gov/historicaldocuments/frus1964-68v11/d56>.

Johnson's support for the NATO nuclear force waned soon after his victory in the 1964 election. By the end of the year, he had "unofficially" withdrawn his support for the effort. Several factors likely drove this evolution. These included the idea that, having won the White House on his own, he was no longer bound by Kennedy policies (as he understood them); growing confidence in his own foreign policy acumen; and the effect of the antinuclear "Daisy ad" in the presidential campaign, which underscored how popular a non-proliferation agreement might be.<sup>102</sup> In addition, as Johnson himself later explained, his support for the MLF had been based on a misapprehension of others' views: "I thought Kennedy was for it, and it was mine to carry on, and I thought Congress was for it."<sup>103</sup> As he reevaluated these mistaken beliefs and came to understand the tension between the MLF and his non-proliferation aspirations, he would abandon the NATO nuclear force in favor of the NPT.

Yet part of the reason Johnson's unofficial withdrawal of support for the NATO nuclear force remained unofficial was that there was no obvious alternative way to sate the NATO allies' desire to play a more active role in their own nuclear defense. The Nuclear Planning Group (NPG) came along to fill this policy void. The brainchild of Defense Secretary Robert S. McNamara at a May 1965 NATO defense ministerial meeting, the NPG became a forum for NATO defense ministers to discuss nuclear planning, operations, and effects in detail. McNamara's hope was that these discussions would have salutary effects on the alliance. First, he simply sought to educate NATO leaders on nuclear issues. Because of their total reliance on the US for both nuclear weapons and expertise, before the NPG began meeting in November 1965, these officials were largely ignorant in this field. Second, he hoped that greater understanding of the likely consequences of nuclear war would lead NATO countries to comply with perennial US requests to boost conventional defense spending. Third, McNamara hoped that this greater understanding would also "end talk of a multilateral force."<sup>104</sup>

McNamara's NPG idea kicked off a de facto policy runoff between the MLF and the existing NATO nuclear sharing arrangements—now augmented by deeper US-allied engagement via the NPG. Whichever approach looked better from the White House and NATO capitals, and that might be tolerated by Moscow, would win. As of summer 1965, both Germany and (at least

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<sup>102</sup> Popp, "The Long Road to the NPT," p. 15; Schwartz, *Lyndon Johnson and Europe*, pp. 42-43.

<sup>103</sup> Schwartz, *Lyndon Johnson and Europe*, p. 41.

<sup>104</sup> Edward J. Drea. *McNamara, Clifford, and the Burdens of Vietnam: 1965-1969*, vol. 6, Secretaries of Defense Historical Series, ed. Erin R. Mahan and Stuart I. Rochester (Washington, DC: US Department of Defense, 2011), pp. 382-384, [https://history.defense.gov/Portals/70/Documents/secretaryofdefense/OSDSeries\\_Vol6.pdf?ver=2014-05-28-134006-577](https://history.defense.gov/Portals/70/Documents/secretaryofdefense/OSDSeries_Vol6.pdf?ver=2014-05-28-134006-577). The contrast between the NPG and the MLF points up a curious bureaucratic role reversal. The State Department's preferred approach to European security centered on military hardware—the MLF ships and weapons—whereas the Defense Department's approach centered on group discussion and persuasion.

officially) the US remained committed to the MLF.<sup>105</sup> By around the time of the first NPG meeting in November 1965, the Germans, having been strung along on the MLF since the Kennedy years without result, were more or less resigned to its demise. As McGeorge Bundy explained to Johnson,

It is clear that the Germans no longer really expect that we will support an MLF, and I believe that if you and [West German Chancellor Ludwig] Erhard could reach a firm agreement in early December, that no new weapons systems [are] necessary, the way might be open towards a non-proliferation treaty and toward a collective arrangement for command control and consultation in NATO.<sup>106</sup>

McNamara's nascent NPG was too new to claim credit for the November 1965 shift in German thinking. However, in the coming months, it would prove its value in making that shift in thinking palatable and durable.

For its part, the NATO nuclear force died quietly in early fall 1966. On September 2, Walt Rostow, formerly one of the MLF's leading evangelists, wrote a thoughtful memo to the president that effectively put the idea to rest. Describing the Theologians' conceptual link between future European unity and the MLF, he observed that

there have been several US statements in the past which implied that if the Europeans fully united we would not rule out the possibility of their having an independent right to fire nuclear weapons....If we are now to probe Gromyko and the Russians deeply as to the possibility of a non-proliferation treaty, Bob McNamara's and my judgement is that the probe should take place on this question: Would the Russians sign a treaty if we were to guarantee that we would not surrender under any future circumstances...our veto over the firing of nuclear weapons?<sup>107</sup>

Finally, wrestling with the "interesting problem of persuading the Europeans to accept this proposition," he concluded that "I believe the job could be done."<sup>108</sup>

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<sup>105</sup> Thomas L. Hughes, Research Memorandum to the Secretary, Subject: Attitudes of Selected Countries on Accession to a Soviet Co-sponsored Draft Agreement on the Non-Proliferation of Nuclear Weapons, July 15, 1965, <https://nsarchive.gwu.edu/document/21703-document-16-thomas-l-hughes-secretary>; Nye, "US-Soviet Cooperation in a Nonproliferation Regime," p. 342.

<sup>106</sup> Memorandum From the President's Special Assistant for National Security Affairs (Bundy) to President Johnson, Nov. 25, 1965, FRUS 1964-1968, vol. 11, doc. 102, <https://history.state.gov/historicaldocuments/frus1964-68v11/d102>.

<sup>107</sup> Memorandum From the President's Special Assistant (Rostow) to President Johnson, Sept. 2, 1966, FRUS 1964-1968, vol. 11, doc. 146, <https://history.state.gov/historicaldocuments/frus1964-68v11/d146>.

<sup>108</sup> Memorandum From the President's Special Assistant (Rostow) to President Johnson, Sept. 2, 1966.

## “Neither expressly permits nor prohibits”

As early as May 1966, Arms Control and Disarmament Agency (ACDA) director William Foster articulated the basic NATO nuclear sharing compromise that Moscow and Washington would ultimately reach in the NPT. “I recommend,” he wrote to the secretary of state, “that we give serious thought to the possibility of a general non-proliferation formula which neither expressly permits nor prohibits a NATO ‘hardware’ option.”<sup>109</sup> The key question was how to get there.

It had been seven months since the October 1965 conversation in which Soviet ambassador Dobrynin first signaled that there might be some room to negotiate on NATO nuclear sharing to a skeptical Rusk.<sup>110</sup> Like Rusk, others in the US government were unsure what to make of the new Soviet statements. “Dobrynin introduced new uncertainties rather than clarified specific issues,” one analyst observed.<sup>111</sup> Echoing this view, the acting director of ACDA concluded that “to date the Soviet position on what forms of nuclear sharing might be permitted under a non-proliferation treaty remains unclear.”<sup>112</sup>

By giving the USSR something new to react to, the standup of the NPG beginning on November 25, 1965, helped to reduce this uncertainty. Predictably, the Soviets’ initial reaction was reflexively negative. In a December 23 cable, US ambassador to the Soviet Union Foy Kohler quoted Soviet foreign minister Gromyko describing the NPG as providing “access [to nuclear weapons] to Germans on a ‘political plane.’” Moreover, he threatened that “if this were so, the truth would [come] out sooner or later and this would eliminate the possibility of a non-proliferation agreement.” Asked to clarify the source of his concern, “Gromyko replied that what he was talking about was the nuclear committee idea, which they considered unacceptable.”<sup>113</sup> In a similar vein, Soviet leader Alexei Kosygin wrote to Johnson, stating pointedly that “a new concession to West Germany which creates obstacles to...non-

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<sup>109</sup> Memorandum From the Director of the Arms Control and Disarmament Agency (Foster) to Secretary of State Rusk, May 25, 1966, Subject: Key ENDC Developments and Recommendations, FRUS 1964-1968, vol. 11, doc. 131, <https://history.state.gov/historicaldocuments/frus1964-68v11/d131>.

<sup>110</sup> Memorandum of Conversation, Oct. 29, 1965.

<sup>111</sup> Thomas L. Hughes, Memorandum to the Secretary, Subject: Dobrynin’s October 29 Oral Statement on Nonproliferation, Nov. 1, 1965, <https://nsarchive.gwu.edu/document/16442-document-09-thomas-l-hughes-bureau>.

<sup>112</sup> Memorandum From the Acting Director of the Arms Control and Disarmament Agency (Beam) to Secretary of State Rusk, Nov. 4, 1965, Subject: Soviet Position on Nuclear Sharing, FRUS 1964-1968, vol. 11, doc. 101, <https://history.state.gov/historicaldocuments/frus1964-68v11/d101>.

<sup>113</sup> Telegram From the Embassy in the Soviet Union to the Department of State, Dec. 23, 1965, FRUS 1964-1968, vol. 11, doc. 106, <https://history.state.gov/historicaldocuments/frus1964-68v11/d106>.

proliferation...was the proposal providing for the FRG's participation in the question of nuclear strategy in NATO within the framework of the so-called 'McNamara committee [NPG].'"<sup>114</sup>

Johnson's response to Kosygin was to emphasize the fundamentals:

I think we must first agree on the meaning of the concept of "proliferation." We believe that "proliferation" results when a non-nuclear nation acquires its own national capability or the right or ability to fire nuclear weapons without the explicit concurrent decision of an existing nuclear nation.<sup>115</sup>

Within six months, however, Moscow's ardor on the NPG had cooled somewhat. During a conversation with the head of ACDA, Dobrynin

did not state flatly that the Soviets would sign the Non-Proliferation Treaty if we rejected the [MLF-type] hardware solution to nuclear sharing, [but] he did indicate quite clearly that this was the area of their concern, and that they were not concerned with present US weapons in Germany or with the possibility of more substantive consultation between us and our allies on the use of nuclear weapons.<sup>116</sup>

The NATO nuclear force was still anathema to the Soviets, but they had concluded that status quo nuclear sharing plus discussion of nuclear issues in the NPG was tolerable.

## Article I

This development touched off a five-month effort to develop the draft treaty language that would provide the basic scope for the NPT in Article I. The US put together a draft in June that was still undergoing revision in mid-July. As one of the participants in this process correctly observed, "It is very difficult to find a simple generalized formula for a non-proliferation undertaking which (a) retains nuclear sharing options, (b) improves our tactical debating position, and (c) has a realistic chance of being accepted by the USSR."<sup>117</sup>

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<sup>114</sup> Message from Chairman Kosygin to President Johnson, Jan. 11, 1966, FRUS 1964-1968, vol. 11, doc. 108, <https://history.state.gov/historicaldocuments/frus1964-68v11/d108>.

<sup>115</sup> Letter From President Johnson to Chairman Kosygin FRUS, 1964-1968, vol. 11, doc. 116, <https://history.state.gov/historicaldocuments/frus1964-68v11/d116>.

<sup>116</sup> Memorandum From Spurgeon M. Keeny, Jr., of the National Security Council Staff to the President's Special Assistant (Rostow), June 9, 1966, Subject: Dobrynin-Foster Meeting, FRUS 1964-1968, vol. 11, doc. 137, <https://history.state.gov/historicaldocuments/frus1964-68v11/d137>.

<sup>117</sup> U. Alexis Johnson, Memorandum to the Secretary of State, Subject: Comments on the Proposed Revision of the Draft Non-Proliferation Treaty, July 11, 1966, <https://nsarchive.gwu.edu/document/16446-document-13-deputy-under-secretary-state>.

In parallel with the US-Soviet engagement on specific treaty language, the US was also working to get its ally West Germany to acknowledge that the MLF was a dead letter. As of July 1966, the Federal Republic of Germany (FRG) was unequivocal in asserting that it “had not abandoned its desire for such a [hardware] solution—if not in the form of the MLF then in some form.”<sup>118</sup> Yet by September, the State Department’s Bureau of Intelligence and Research judged that the NPG “should be able to give the Germans a sufficiently greater sense of participation in the formation and execution of alliance nuclear policy...[and] German membership in it would seem to meet adequately Germany’s aspirations for status and prestige.”<sup>119</sup>

A late September White House summit between Johnson, German chancellor Ludwig Erhard, and Federal Minister of Foreign Affairs Gerhard Schroeder bore out this prediction. According to the State Department cable summarizing the meeting, “They [were] not pressing for hardware solutions at present...[They] need assurance that Western response to Soviet attack would be sufficiently powerful and sufficiently credible to deter. Said German people wish to have voice in this deterrent.”<sup>120</sup> The NPG was emerging as the venue in which the FRG could use that voice.<sup>121</sup>

With West Germany’s NATO nuclear force ambitions effectively corralled, the US-Soviet effort to arrive at mutually agreeable Article I treaty language continued into the fall. No longer using ambiguity about their positions as a negotiating tool, on October 10, 1966, Gromyko outlined for Secretary Rusk over dinner the three criteria that the Article I treaty language would have to meet: “a. No transfer of nuclear warheads to non-nuclear states. b. No transfer of nuclear warheads to alliances made up of nuclear and non-nuclear states. c. No transfer of warheads to alliances of non-nuclear states.” Moreover, “Gromyko, in his discussions with the President and Secretary Rusk, made it quite clear that the Soviets consider a non-proliferation treaty a major objective of Soviet foreign policy which will be pursued despite Vietnam and other difficulties.” On this basis, Rusk drafted corresponding treaty language that he vetted with McNamara and

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<sup>118</sup> Memorandum of Conversation, Subject: Disarmament and Related Problems, July 1, 1966, <https://nsarchive.gwu.edu/document/16445-document-12-memorandum-conversation>.

<sup>119</sup> Memorandum from Thomas L. Hughes (INR) to Acting Secretary of State, Subject: The Special Committee: Can It Satisfy European Nuclear Aspirations? Sept. 22, 1966, <https://nsarchive.gwu.edu/document/17561-document-16-inr-thomas-l-hughes-secretary>.

<sup>120</sup> Daniel Khalessi, “Strategic Ambiguity: Nuclear Sharing and the Secret Strategy for Drafting Articles I and II of the Nonproliferation Treaty,” *Nonproliferation Review* 22, no. 3-4 (2015), pp. 430-431.

<sup>121</sup> Thomas Schwartz further notes that Erhard’s domestic political weakness, which made a successful summit especially important to him, could have contributed to the FRG’s willingness to abandon the MLF. Schwartz, *Lyndon Johnson and Europe*, p. 128.

Johnson.<sup>122</sup> The following month, in response, Moscow shared a slightly revised version with Washington.

That text, agreed by the superpowers in November 1966, became almost verbatim the text of Article I of the NPT when it was opened for signature in July 1968.<sup>123</sup>

## Structured, focused analysis

Addressing all of the study's driving questions helps to summarize a complex history and identify concrete lessons for policy-makers.

### **Was the NPT nuclear sharing agreement a case of successful or failed great power nuclear cooperation?**

Successful. In late 1966 the US and Soviet Union reached basic agreement on the text of Article I of the NPT. Their bilateral agreement paved the way for the negotiation, signature, entry into force, and eventual extension into perpetuity of the world's most widely-adhered-to, and arguably most important, multilateral treaty since the Peace of Westphalia.

### **Did US officials believe that cheating would be easy to hide?**

No. US officials understood that the gross outlines of their nuclear sharing arrangements with NATO would be visible to Moscow. Correspondingly, there is no evidence that the US government considered the possibility of reaching a backroom nuclear sharing arrangement with NATO and then misrepresenting the nature of that arrangement to the Soviets to enable continued progress toward the NPT.

### **Did cooperation seem likely to generate relative advantage for one side?**

No. The understanding that Washington and Moscow reached not did produce greater advantage for one side than the other. It merely ratified the status quo arrangements that the

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<sup>122</sup> Memorandum From the Assistant Secretary of Defense for International Security Affairs (McNaughton) to Secretary of Defense McNamara, Oct. 15, 1966, Subject: Discussions on Nonproliferation Treaty, FRUS 1964-1968, vol. 11, doc. 162, <https://history.state.gov/historicaldocuments/frus1964-68v11/d162>; Lyndon B. Johnson and Robert S. McNamara, Conversation WH6610-05-10953, Oct. 16, 1966, Lyndon B. Johnson Presidential Library, Draft Transcript, Presidential Recordings Program, Miller Center of Public Affairs, University of Virginia, <https://d29j0x7vue4ie8.cloudfront.net/2021-05/WH6610-05-10953%20-%20A%20Paragraph%20on%20Nonproliferation.pdf>.

<sup>123</sup> Message to the President from Secretary Rusk, Nov. 26, 1966, <https://nsarchive.gwu.edu/document/16449-documents-16-final-language-article-i>; United Nations, "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," <https://www.un.org/disarmament/wmd/nuclear/npt/text/>; Popp, "The Long Road to the NPT," pp. 19-20.

US and allies had on the ground while adding senior-level discussions to the mix. In contrast, Moscow may have believed that it would be worse off in an alternate future in which NATO fielded a potent semi-independent European nuclear force. For its part, the US would not have tolerated the relative advantage loss that would have accrued if the prospective NPT banned its existing nuclear sharing arrangements. By taking both possible outcomes off the table, the US and USSR obviated one another's relative gains concerns and generated an agreement that both could live with.

### **Were senior US officials focused primarily on long-term (years or decades) challenges, as opposed to short-term concerns?**

Senior US officials, including President Johnson, viewed the whole package of issues connected to the NPT nuclear sharing agreement from a long-term perspective. First among these issues was proliferation. It was a challenge that was not going away; moreover, if proliferation became common, it was unlikely to reverse itself. These factors made proliferation a long-term concern. Second was the MLF/ANF NATO nuclear force. This idea was animated in part by the Theologians' desire to catalyze the eventual unification of Europe. The clearest signal of the NATO nuclear force's demise came when one of its leading proponents, Walt Rostow, in effect acknowledged that uniting Europe was desirable but that inhibiting proliferation was essential. The focus on important long-term issues, coupled with the fact that both superpowers were, in a way, conspiring over the heads of their allies, prevented either side from "negotiating in public" to win short-term benefits in world public opinion.

### **Did both potential cooperators believe that they faced a common threat or challenge?**

Absolutely. Moscow and Washington viewed nuclear proliferation, including proliferation by their close allies, as a common threat to their mutual security.

### **Was the US interagency supportive of cooperation, opposed, or divided?**

Initially divided and then supportive. As of fall 1964, the US government was divided on the question of non-proliferation cooperation with the Soviet government in two senses. First, consensus had not yet developed around the desirability and achievability of a non-proliferation treaty. The Gilpatric Committee's wide-ranging review of policy options and corresponding consequences led to its unanimous recommendation that the US attempt to cooperate with the Soviet Union to inhibit proliferation. Second, the administration was divided with respect to nuclear sharing in NATO. State Department Theologians supported non-proliferation. However, they also supported the MLF, which was the key barrier standing between the US and USSR and a prospective treaty. By fall 1966, these divisions had all but evaporated. The status quo nuclear sharing arrangements in NATO plus detailed NPG

discussions were acceptable to both allies and the Soviet Union. From this point onward, the process of drafting the agreed text of Article I was straightforward because the consensus view in the US government was that cooperation with the USSR on the NPT was desirable.

### **Were more than two states primarily responsible for the success or failure of the proposed cooperative arrangement?**

No. The process of arriving at the 1966 NATO nuclear sharing agreement involved several countries. China's nuclear test was the starting gun for the effort. NATO allies Britain, Italy, (especially) Germany, and others were stakeholders in the discussions who made their views known to the US. On the other side of the Iron Curtain, fear of West German proliferation drove Soviet policy overall and led Moscow's Warsaw Pact allies to demand that their patron take a firm stance against the MLF. Yet despite the involvement of these other nations in the process, the understanding that Moscow and Washington arrived at with respect to the status of NATO nuclear sharing and the NPT was the sole purview of the superpowers. Both gave their allies a respectful hearing but not a veto.

## **Why did the NPT nuclear sharing agreement succeed?**

The US-Soviet NPT nuclear sharing agreement came together and held because all three of the factors that enable or prevent great power nuclear cooperation pointed toward its success. First, the understanding that Washington and Moscow reached did not produce greater advantage for one side than the other. It merely ratified the status quo arrangements that the US and allies had on the ground.

Second, both countries' decision-makers pursued the NPT because of their long-term concerns about proliferation. Up until fall 1964, West Germany was the focus of Moscow's proliferation fears. For the US, China was the driving threat. But following the Chinese test, both superpowers came to agree not only that both countries were a concern but also that the larger long-term fear was of proliferation cascades. Proliferation by one country could lead its neighbors to pursue the bomb for their own security—producing a rippling spread of nuclear weapons throughout the world.<sup>124</sup> Although inhibiting proliferation promised to be very difficult, the Gilpatric Committee's summary of the situation from the US perspective applied equally to the Soviet Union: "The rewards of long-term success would be enormous; and even partial success would be worth the costs we can expect to incur."<sup>125</sup> The long-term threat of

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<sup>124</sup> Miller, *Stopping the Bomb*.

<sup>125</sup> Report by the Committee on Nuclear Proliferation, Jan. 21, 1965.

cascading proliferation turned out to be a powerful incentive toward great power nuclear cooperation.

Third, both sides understood that cheating in the field of nuclear sharing would be easy to detect. The work of drafting Article I—in effect a definition of what constituted proliferation and would therefore be forbidden—helped to ensure this. Certainly, many narrow operational or technical matters connected with US nuclear sharing in NATO could have been expected to escape detection by Soviet intelligence. However, it was equally certain to both sides that whatever basic arrangements the US and NATO made with respect to American nuclear weapons in Europe would be visible from Moscow. As Alexei Kosygin underscored in a letter to Johnson on the NPG, “The truth would [come] out sooner or later and this would eliminate the possibility of a non-proliferation agreement.”<sup>126</sup>

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<sup>126</sup> Telegram From the Embassy in the Soviet Union to the Department of State, Dec. 23, 1965.

# Conclusions and Recommendations

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“So now what should we do?” That is the policy-maker’s perennial question. The preceding march through the early history of great power nuclear cooperation provides insights. But it stops short of addressing the senior official’s simple but tough question.

This concluding section aims to put history to work for policy-makers. It first draws on the research and analysis presented above to provide three actionable recommendations for policy-makers seeking to advance US national interests through great power nuclear cooperation:

- Identify areas in which neither side benefits disproportionately from cooperation.
- Forgo easy short-term wins in favor of long-term objectives.
- Tailor agreements and verification regimes so cheating is difficult to conceal.

Next it presents four big picture ideas that we recommend policy-makers use to orient their overall approach to great power nuclear cooperation:

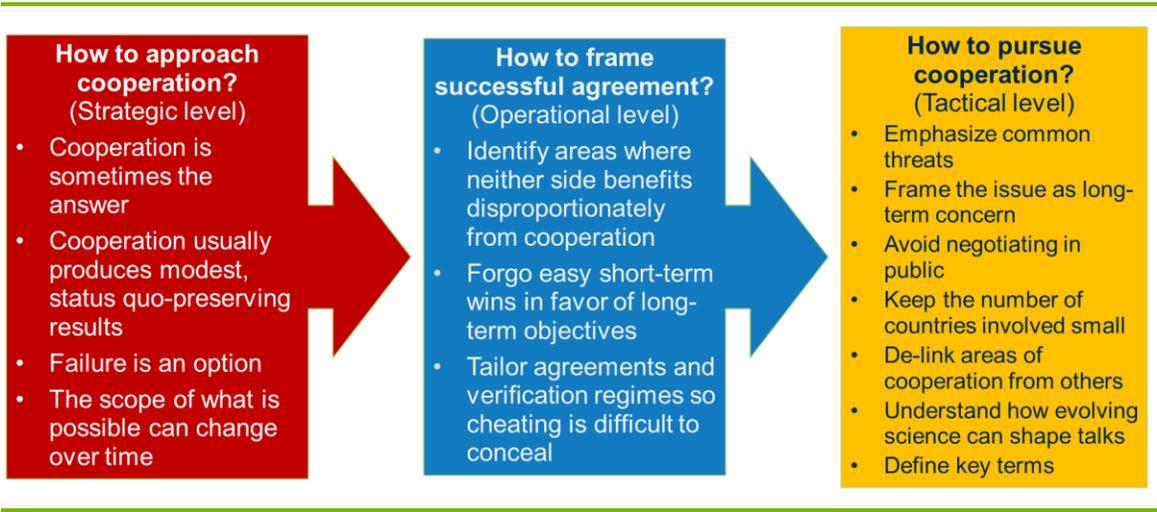
- Cooperation is sometimes the answer.
- Cooperation usually produces modest results by preserving the status quo balance of advantage.
- Failure is an option.
- The scope of what is possible can change over time.

Finally, it provides seven practical recommendations drawn from history and theory that US officials can use to increase the likelihood that their attempts to cooperate with rivals to reduce nuclear risk will succeed:

- Emphasize common threats.
- Frame the issue as a long-term problem.
- Avoid negotiating in public.
- Keep the number of countries involved small.
- De-link areas of possible cooperation from other issues.
- Understand how scientific uncertainty or evolving science can shape negotiations.
- Define key terms to clarify positions and limit misunderstandings.

The project’s recommendations are summarized in Figure 3.

Figure 3. Recommendations in brief



Source: CNA.

## How to frame a successful agreement?

The key finding of this study is that *risk-reducing great power nuclear cooperation is more likely to develop and endure when relative material gains are not perceived as relevant, policy-makers' time horizons are long, and cheating is difficult to conceal.*

This statement captures three factors at the operational level of diplomacy that policy-makers can influence, and that have direct bearing on whether great power nuclear cooperation succeeds or fails. Those drivers of success and failure are as follows:

- Relative advantage—whether policy-makers perceive that cooperation would leave either great power better or worse off with respect to each other.
- Time horizons—whether policy-makers are willing to forgo easy short-term benefits to cooperatively pursue an objective or mitigate a threat that lies years or decades in the future.
- Cheating—whether the details of a cooperation arrangement are such that the potential costs and risks of being caught are perceived to outweigh the benefits to either side of cheating.

Based on these findings, we recommend the following to US policy-makers seeking to manage nuclear risk through cooperation with adversaries:<sup>127</sup>

- Identify areas in which neither side (the US nor its rival(s)) would gain disproportionate benefits from cooperation. Non-proliferation and nuclear safety and security agreements are good historical examples.
- Forgo short-term advantages during the pursuit of long-term agreements to cooperatively manage nuclear risks—and encourage others to do the same. For example, the opportunity to poison negotiations and publicly pin blame for failure on an opponent has often been tempting enough to derail nascent attempts at cooperation. Such temptations should be avoided.
- Tailor agreements and any corresponding verification regimes so that they are invasive enough to detect cheating in a timely fashion but not so invasive that they become intelligence collection activities that generate relative advantage.

## How to approach great power nuclear cooperation

Stepping back from the operational level recommendations above, US foreign policy and national security decision-makers can pursue a wide range of strategies for advancing the national interest. Cooperation is one of them, but it is often overshadowed by competition, especially in great power relations. How should policy-makers approach the overall topic of cooperation as a way of managing nuclear risk and advancing the national interest?

We recommend that senior officials keep the following four principles in mind. Although they do not prescribe specific actions, returning periodically to these principles can help policy-makers evaluate options and frame decisions as they survey the landscape of nuclear cooperation challenges and opportunities:

- Cooperation is sometimes the answer: The most important takeaway from this work is that under the right circumstances—no advantage to be gained or lost, cheating obvious, and time horizons long—great powers can advance their mutual interests and reduce nuclear risks by working together. These conditions do not always prevail, but when they do, openness to the possibility of cooperation coupled with hard-nosed negotiations focused on selfish national interests can produce incredible results.

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<sup>127</sup> These recommendations may also be useful in cases that involve non-great powers or that do not involve nuclear risk. However, such cases are outside the scope of this study.

Absent this understanding, the NPT would never have been negotiated, and the number of nuclear powers in the world could easily have grown into the dozens.

- Cooperation usually produces modest results by preserving the status quo balance of advantage: There are two basic reasons for this. First, self-interested great powers do not enter into cooperative agreements with rivals that would clearly reduce their power position with respect to each other.<sup>128</sup> Thus, cooperation is unlikely to change the status quo power balance. Second, agreements that revise the status quo without relative advantage implications often require invasive verification regimes. For example, verifying that certain weapons have been dismantled by both sides typically requires on-site inspections. For both reasons, the results of cooperation are usually modest and preserve the status quo. Exceptions to this rule—such as the Intermediate-range Nuclear Forces treaty, which eliminated a whole class of missiles—are rare. As a result, proponents of great power cooperation should understand the (usual) limits of their preferred approach. Reciprocally, cooperation skeptics should (usually) be able to advance their arguments without invoking Munich.
- Failure is an option: Two of the three attempts at great power nuclear cooperation discussed in this report ended in failure. In both cases, the consequences of failure were comparatively small and fleeting. In the Open Skies case, Eisenhower’s surprise proposal probably did no good to US-Soviet relations, but whatever harm was done was not lasting. In the test moratorium case, the main damage done, according to testing proponents, was delayed progress in US nuclear weapons development. The major blow to US-Soviet relations during the moratorium was dealt by Khrushchev at Vienna. The moratorium’s demise was therefore a symptom of the deteriorating US-Soviet relationship, not its cause. Moreover, the US and Soviet Union did subsequently strike a deal on testing. In the aftermath of the Cuban Missile Crisis, Kennedy and Khrushchev signed the Limited Test Ban Treaty in 1963. The scope of that treaty—limited—was shaped in part by politico-diplomatic and scientific-technical lessons learned from the moratorium. Similarly, the US and Russia later reached an Open Skies agreement—although it has since collapsed. Fear of failure should not deter leaders

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<sup>128</sup> This finding from the study of bipolar competition likely extends to other great powers in a multipolar world. That is, a great power A would not cooperate with B if the agreement weakened A’s position with respect to C—even if the status quo with B was preserved.

from attempting cooperation. Even bad outcomes are generally tolerable, and lessons learned from failure can lead to better results in the future.<sup>129</sup>

- The scope of what is possible can change over time: In 1955, senior US national security officials could still speak of disarmament with a straight face. Eisenhower appointed a “Secretary of Peace” whose proposals on this topic were as naïve as they were earnest. (Tellingly, he later became a pariah within the administration as a result.) Some goals that seemed ambitious but reasonable in the Cold War’s early years simply proved impossible to achieve. On the other hand, few in 1955 would have predicted that within 15 years, a landmark non-proliferation treaty would be ratified by 40 countries. Similarly, in 1970, few would have guessed that this new treaty would be extended into perpetuity and would have more than 190 adherents some 50 years later. What actually *is* achievable in the realm of great power nuclear cooperation changes over time—and one of the factors driving this change is what policy-makers *think* is achievable. Alternatively, if policy-makers convince themselves that meaningful cooperation with adversaries is impossible, they will be doomed to compete.

## What diplomatic tactics can help advance great power nuclear cooperation?

We close with a set of seven recommendations at the tactical level of diplomacy, which policy-makers can use alongside the strategic and operational recommendations above: You are a senior US official charged with managing nuclear risks, including through cooperating with great power rivals if appropriate. You understand in general how to approach the issue. You know that cooperation is sometimes the answer; that it usually preserves the status quo; and that failure is an option. You believe that you have set a goal that is ambitious but within the realm of what is currently possible. Moreover, you have vetted the issue at hand against the three drivers of success and failure in great power nuclear cooperation discussed in this paper. Relative advantage should not be salient. Both sides could plausibly adopt a cooperation-inducing long-term perspective on the problem in question. Cheating seems like it would be

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<sup>129</sup> See, for example, the US-Soviet SALT I arms control interim agreement. US technological advances following the treaty’s entry into force, specifically improved ballistic missile accuracy and the development of cruise missiles, rendered the treaty disadvantageous to the USSR. Regardless, Moscow was able to tolerate this outcome, and both sides went on to negotiate a series of follow-on arms control and arms reduction treaties. See John L. Gaddis, *Strategies of Containment* (Oxford University Press, 2005), p. 322, as well as Brendan Green, *The Revolution that Failed: Nuclear Competition, Arms Control and the Cold War* (Cambridge University Press, 2020), ch. 5-8.

straightforward to detect and thereby prevent. All signs suggest that a cooperative strategy may be useful and effective.

So, what should you do now? There is no cookbook recipe for diplomatic success, but history and theory (see the appendix for in-depth discussion) do offer suggestions for tactics you can use to improve the odds:

- **Emphasize common threats:** Nothing brings people and nations together like a shared enemy. The fact of a PRC bomb and the fear of a German bomb were together a powerful enough common threat to get Moscow and Washington to compromise on NATO nuclear sharing in order to move forward with the NPT. In contrast, the shared threat of nuclear conflict existed in the Open Skies and test moratorium cases, but leaders did not invoke it and it did not seem to animate their behavior. Therefore, officials looking to initiate dialogue with rivals on cooperation are more likely to succeed if their pitch is oriented toward overcoming some common threat. Reagan's argument that the "alien" threat of nuclear weapons was a shared danger to be avoided provides a good example of this approach. Moreover, it had the added advantage of being true.<sup>130</sup>
- **Frame the issue as a long-term problem:** International relations theory, based in part on game theory (see the appendix), suggests that cooperation is more likely between two actors who know that they will continue interacting for the foreseeable future. Similarly, the history presented above suggests that cooperative strategies succeed when both sides forgo short-term benefits, such as portraying their rival in a negative light, and remain focused on long-term gains. Therefore, officials looking to cooperatively manage nuclear risks with rivals are more likely to succeed if they treat the issue at hand in word and deed as an enduring challenge.
- **Avoid negotiating in public:** Officials are often tempted to portray their adversary as an inflexible, unreasonable enemy of peace by "negotiating in public." The benefits of this strategy, as described, are short-term propaganda wins. However, the cost of this short-term advantage could be a mutual security-enhancing agreement that provides long-term benefits. Therefore, policy-makers should negotiate privately—keeping the day-to-day parry and thrust of their talks out of the public eye until they are at the cusp of completion—and should expect their counterparts to do the same as a sign of their serious focus on the long-term issues.

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<sup>130</sup> See also Stephen Walt, *The Origins of Alliances* (Ithaca, NY: Cornell University Press, 1990); Barry Posen, "The Security Dilemma and Ethnic Conflict," *Survival* 35, no. 1 (1993). A related puzzle is why great power leaders do not always treat nuclear weapons in this way. Together with giant asteroids as well as possibly drug resistant bacteria, gene editing and climate change, nuclear weapons are among a small handful of threats to all of human civilization. My thanks to Reid Pauly for this perspective.

- Keep the number of countries involved small: The stag hunt game in international relations theory (see the appendix) suggests that cooperation is easier to achieve and maintain among smaller groups. A hunter is more likely to defect from a large hunting group than from a small one in which their absence would be more obvious and easier to punish. Historically, the US and Soviet Union seemed to implicitly acknowledge this fact by effectively cutting their respective allies out of the process of bilaterally negotiating the NATO nuclear sharing agreement captured in NPT Article I. Allies may have been given a respectful hearing, but they were not actually involved in the US-Soviet dialogue and were not let into the process until the two great powers had reached a firm agreement that was not subject to veto or revision by others. Therefore, officials seeking to cooperate on nuclear risk management are more likely to find success in bilateral agreements than in trilateral agreements. This may make nuclear competition between the US and Russia and China more difficult to manage than the US-Soviet/Russian relationship to date.
- De-link areas of possible cooperation from other issues: Given their globe-spanning interests, rival great powers inevitably have complex relationships. Their objectives may intersect or clash in a wide range of issue areas. Competition or even conflict in one area should not automatically preclude cooperation in the nuclear field—simply because nuclear risks are so consequential. Put another way, linkage can be a barrier to nuclear cooperation. For example, between 1964 and 1968, the Johnson Administration both partnered with the Soviet Union to negotiate the NPT and sent (at peak) more than 500,000 Americans to Vietnam to fight communism. A total of 36,756 were killed during this time.<sup>131</sup> Had either Washington or Moscow been unwilling to compartmentalize the NPT so that progress toward that goal would not be undermined by the fighting in Vietnam, they never could have achieved the landmark agreement. Therefore, looking ahead, policy-makers who aim to cooperatively manage nuclear risks must be able to cooperate in some areas even as they are competing or even fighting in others. In practice, this will likely mean acknowledging that nuclear risks are more important than others and then making tough choices (including the choice to accept domestic political flak) to cooperatively mitigate those rightly prioritized risks.
- Understand how scientific uncertainty or evolving science can shape negotiations: Policy-makers must rely on scientific judgment to do their work. Unfortunately, the intersection of science and politics is complex and rarely provides policy-makers with

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<sup>131</sup> “Clark M. Clifford,” DoD Historical Office, <https://history.defense.gov/Multimedia/Biographies/Article-View/Article/571292/clark-m-clifford/>; “Vietnam War U.S. Military Fatal Casualty Statistics,” National Archives, <https://www.archives.gov/research/military/vietnam-war/casualty-statistics>.

the clear, solid truth that they desire. Two examples from the test moratorium illustrate the point. First, the US agreed to the test moratorium based on scientific judgment—that cheating on a test ban was readily detectable—that turned out to be false. Second, in an attempt to overcome the impasse over verification, Eisenhower turned to technical discussions between US and Soviet experts—assuming that reasonable scientists would agree on the facts. Yet under political pressure, the Soviet scientists used their training to attack and discredit the American technical arguments, and no progress was made. Obviously, policy-makers looking to cooperate with rivals on nuclear risks will have to rely on scientific and technical judgments, especially in the field of verification. However, a bumper-sticker-level commitment to “follow the science” without (1) a deeper understanding of the relevant data, analysis, and corresponding uncertainty; (2) an understanding of how that uncertainty can be wielded as a political weapon; and (3) a plan for updating policies or negotiating positions to reflect improved scientific understanding is likely to fail.<sup>132</sup>

- Define key terms to clarify positions and limit misunderstandings: One common cause of unproductive arguments is simple misunderstanding. Lyndon Johnson recognized that the wheel-spinning US-Soviet discussions about nuclear sharing in the NPT were rooted in such misunderstanding. His solution was to write to his Soviet counterpart suggesting a definition of proliferation that (1) he believed both sides could agree to and (2) would preserve the status quo NATO nuclear sharing arrangements. This step was not revolutionary, but it was productive in that it was a straightforward way of helping both sides find common ground so that they could move ahead.<sup>133</sup>

## Concluding thoughts

Near-term prospects for US cooperation with either Russia or China—let alone both—in the nuclear field appear very dim:

- All three powers are modernizing their nuclear forces.

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<sup>132</sup> See also C.P. Snow, *Science and Government* (Cambridge: Harvard University Press, 1961); Sheila Jasanoff, “Contested Boundaries in Policy-Relevant Science,” *Social Studies of Science* 17, no. 2 (1987); See Schelling and Halperin, *Strategy and Arms Control*, pp. 83-84.

<sup>133</sup> Similarly, developing definitions of different categories of conventional military equipment was central to the successful negotiation and implementation of the Conventional Forces in Europe Treaty. See Joseph P. Harahan and John C. Kuhn, III, *On-Site Inspections Under the CFE Treaty*, Defense Threat Reduction Agency, 1998, <https://www.dtra.mil/Portals/61/Documents/History/On-Site%20Inspections%20CFE%20Treaty--final.pdf>. Note, however, that very precise definitions may instigate unproductive quibbling in negotiations, unduly limit an agreement’s scope, or create loopholes. Thus, the prescription is to aim for clarity at whatever level of precision is appropriate. See Schelling and Halperin, *Strategy and Arms Control*, p. 80.

- As of this writing every US-Russian nuclear arms control agreement has been abandoned or suspended.
- China's government remains unwilling to discuss nuclear arms control.
- Russia and China are not going to disappear and are unlikely to undergo dramatic changes in character or objectives.

None of these facts is likely to change soon. The United States will continue to coexist with these nuclear-armed great power rivals for the foreseeable future. Prospects for great power nuclear cooperation are dim today, but there is no reason to assume that this will remain true forever.

Against this background, this report provides concrete recommendations to ensure that US officials are prepared to identify and seize opportunities for security-enhancing nuclear cooperation. It aims to ensure that the US government is prepared to employ the full range of potential strategies—cooperative as well as competitive—to secure and advance our national interests.

# Appendix: Relevant Literature

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In general, scholars of international relations—like policy-makers—devote more attention to competition than cooperation. However, the existing international relations theory literature does provide important conceptual foundations for this study. Three categories of literature bear on the “why” and “how” questions about great power cooperation that drive this project. First is rationalist international relations literature that uses game theory to explore why states cooperate in an anarchic international system. Second is literature that uses cognitive or behavioral approaches to explain why standard rational actor assumptions may not account for common state behaviors, including cooperation. Third is literature that seeks to explain specific instances of great power cooperation and past failures to cooperate. This final category of literature is very small but immensely important because it knits together theory and practice—just as this project seeks to do.

## Rationalist approaches

The rationalist literature on cooperation in international politics relies on rudimentary conceptual tools and provides a strong foundation for this research. Three simple games—the prisoner’s dilemma (PD), chicken, and stag hunt—provide powerful insights into how different objectives, payoff/consequence structures, and enforcement systems shape state behavior.

In one prominent example, political scientist Robert Axelrod has used the PD game to show how repeated interactions can increase prospects for international cooperation. In this game, two criminal co-conspirators are being interrogated separately. Each can avoid jail time if they confess but their counterpart does not. Each will face a long sentence if they refuse to squeal but their counterpart confesses. And if both remain silent, they will face some jail time but not as much as they would if they remain silent and are betrayed by their co-conspirator. Thus, the PD game represents situations in which “the pursuit of self-interest by each leads to a poor outcome for all.<sup>134</sup> In international politics, PD-type situations are common. Two states pursuing a nuclear test moratorium, a cease-fire, or an arms control deal face a similar payoff structure and have similar concerns about their counterparts’ trustworthiness.

Using simple computer models to play PD thousands of times according to different strategies, Axelrod’s work yielded two important findings. First, when two players expect to play PD over

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<sup>134</sup> Robert Axelrod, *The Evolution of Cooperation—Revised Edition* (Basic Books, 2006), pp. 7-8.

many rounds (each day of the test moratorium, cease-fire, etc.), the best strategy that either can pursue is a simple tit for tat—mimicking the opponent’s choice in the previous round.

Second, and related, following this strategy consistently through many rounds of play leads both sides to choose cooperation over competition. The predictability of a tit-for-tat strategy coupled with the prospect of future interactions leads to cooperation as each side seeks to maximize its own payoff. Despite its simplicity, the PD game provides valuable insights and strategy guidance for situations that occur frequently in international politics.

Similarly, Robert Jervis has used the games stag hunt and chicken to explore how different payoff/consequence structures shape prospects for cooperation. The game stag hunt imagines a party of hungry hunters lying in wait for prey. If they all cooperate and remain patient, they may be able to kill a large stag and eat well. If one individual suddenly spots a rabbit and leaves the party to pursue it, the individual is certain to have something to eat. However, the group’s trap will be spoiled, and no one will be able to feast on stag. Thus, the challenge lies in coordinating the actions of the hunters and keeping all members of the group focused on the long-term goal—killing a stag—despite the temptation offered by rabbits.<sup>135</sup> Stag hunt mimics some situations in international politics, such as the effort to fight climate change.<sup>136</sup> Like members of the hunting party, the states involved share a long-term goal, but they nevertheless face short-term incentives (such as the benefits of cheap fossil fuels) that can hinder cooperation.

Chicken, on the other hand, is a game in which winning is desirable but not losing is essential. The game imagines two hot-rodders speeding toward one another along a straight stretch of road. Each driver must keep their car straddling the center line. Veering away means losing the game, but staying the course risks a deadly collision. Therefore, winning necessitates convincing the adversary that they must veer away because you will not—no matter how dangerous and unreasonable that may seem. According to Jervis, “Commitment, the rationality of irrationality, manipulating the communications system, and pretending not to understand the situation, are among the tactics used to reach this goal.”<sup>137</sup> Counterintuitively, in this game, acting insane, powerless to turn the car away, or oblivious to the possibility or consequences of a crash can convince a more cautious opponent to back down. Thus, this game mimics the dynamics of crises so familiar to students of nuclear strategy.

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<sup>135</sup> Robert Jervis, “Cooperation Under the Security Dilemma,” *World Politics* 30, no. 2 (1978), pp. 170-171.

<sup>136</sup> Note that the analogy is imperfect. In a hunting party, defectors can be denied the benefit of stag meat in the future. In international politics, states cannot be denied the benefits of a healthy environment, even if they contribute nothing to the climate fight. See Robert Keohane and David G. Victor, “Cooperation and Discord in Global Climate Policy,” *Nature: Climate Change* 6 (2016), p. 570.

<sup>137</sup> Jervis, “Cooperation Under the Security Dilemma,” pp. 177-178. Chicken is also colorfully described in Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), pp. 116-119.

Finally, political scientist Kenneth A. Oye provides a practical synthesis of the various insights that we can distill from these simple games. He argues that policy-makers looking to facilitate cooperation in international politics can do three things. First, they can manipulate the payoff structure. For example, if policy-makers can deescalate a crisis so that the payoff structure stops resembling chicken and starts resembling the PD, cooperation becomes easier to achieve and sustain. Second, they can lengthen the shadow of the future. By emphasizing reciprocity in cooperation and the inevitability of future interactions on one hand and the fact that failure to cooperate will be observed and punished on the other, policy-makers can make incentives to cooperate clear and compelling. Third, they can reduce the number of players. As the stag hunt suggests, the smaller the hunting party, the easier to sustain cooperation.<sup>138</sup>

## Cognitive approaches

As Oye's synthesis indicates, rational game theory holds useful insights for policy-makers seeking to foster cooperation or to succeed in competition. However, these games have a major shortcoming that limits their real-world utility: all assume cold rationality on the part of the players. Powerful emotions that shape decisions, such as anger, fear, and sense of loss, are all absent. So too is uncertainty. Yet it takes no great imaginative leap to see how these factors could shape leaders' decisions in meaningful ways that game theory cannot account for.<sup>139</sup> To understand these dynamics, we turn to social science literature drawing on cognitive psychology and behavioral economics.

Prospect theory is perhaps the most familiar example of systematic deviation from rationality in international politics. According to political scientist Jack Levy, experimental data suggest that "people treat gains and losses differently—they overvalue losses relative to comparable gains."<sup>140</sup> Therefore, even knowing that a simple tit-for-tat strategy is best in PD situations, real-world leaders may be tempted to retaliate exceptionally harshly against opponents who spurn them because they feel their losses so keenly. Political scientist Stacie E. Goddard makes a related point about the importance of frames of reference. She argues that certain territory, such as Jerusalem and Kashmir, is imbued with such symbolic importance that traditional rules

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<sup>138</sup> Kenneth A. Oye, "Explaining Cooperation Under Anarchy: Hypotheses and Strategies," *World Politics* 38, no. 1 (1985). This is grounds for pessimism among those who desire a future US-Russian-Chinese nuclear arms control agreement.

<sup>139</sup> For discussion of how individuals can influence international politics despite the power of structural and domestic forces, see, for example, Daniel L. Byman and Kenneth M. Pollack, "Let Us Now Praise Great Men: Bringing the Statesman Back In," *International Security* 25, no. 4 (2001).

<sup>140</sup> Jack S. Levy, "Prospect Theory, Rational Choice, and International Relations," *International Studies Quarterly* 41, no. 1 (1997), p. 89. For a broader argument on "negativity bias," see Dominic D.P. Johnson and Dominic Tierney, "Bad World: The Negativity Bias in International Politics," *International Security* 43, no. 3 (2019).

of rational bargaining over its fate do not apply.<sup>141</sup> Applying this insight to the game of chicken, if both hot-rodders held an earnest but nonrational belief that straddling the road's center line was a holy act or otherwise integral to their identities, the risk of a disastrous crash would skyrocket.

Uncertainty is another factor that shapes prospects for cooperation in international politics. The simple games described above have straightforward rules, clear payoff structures, and fixed players. In international relations, by contrast, it is often unclear what the rules are, who the players are, and what they want. Within this context, quirks of human psychology can lead to surprising or undesirable outcomes. For example, Robert Jervis observes that people tend to assume—frequently erroneously—that other actors are responding to things that they have done. They have trouble updating preexisting beliefs. Moreover, the “evoked set” of ideas and memories that are at the front of a leader’s mind at any given time can have an inordinate effect on their decisions.<sup>142</sup> For example, when international tensions are high, a president who just finished a book about the 1914 July Crisis may act differently from one who just finished a book about Neville Chamberlain’s 1939 talks with Hitler in Munich. Crucially, these oddities of human behavior that shape prospects for great power cooperation may not be rational, but they are common and somewhat predictable.

## Historical literature

Simplifications of reality such as games and international relations theory are valuable but can provide only limited insight on their own. Therefore, a thorough study requires a review of past successes and failures in great power cooperation.

Unfortunately, scholarship that explicitly seeks to explain why great powers succeed and fail at cooperation is rare. This is significant because relevant history that merely describes an instance of cooperation may not illuminate important cause-effect relationships between leaders’ beliefs and objectives, their choices, and the success and failure of their cooperative strategies. One example of work that embraces this explanatory mission is Stephen Van Evera’s study of the outbreak of World War I. Leveraging Oye’s game theory–based analytic framework for understanding cooperation, Van Evera asks “whether these three sets of factors can help explain the non-cooperative national policies that culminated in the outbreak of the First

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<sup>141</sup> Stacie E. Goddard, “Uncommon Ground: Indivisible Territory and the Politics of Legitimacy,” *International Organization* 60, no. 1 (2006).

<sup>142</sup> Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976).

World War.” Ultimately, he argues that all three of Oye’s factors contributed to the war.<sup>143</sup> Other work, for example work on the collapse of the cooperative wartime alliance and the beginning of the Cold War and on the cooperative Presidential Nuclear Initiatives aimed at reducing nuclear risks at the Cold War’s end, could be valuable also. Unfortunately, much of the existing work on these topics—although high in quality from a historical perspective—lacks the stiff theoretical backbone employed by Van Evera.<sup>144</sup>

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<sup>143</sup> Stephen Van Evera, “Why Cooperation Failed in 1914,” *World Politics* 38, no. 1 (1985), pp. 80-81.

<sup>144</sup> See, for example, Frank Costigliola, *Roosevelt’s Lost Alliances: How Personal Politics Helped Start the Cold War* (Princeton, NJ: Princeton University Press, 2012); Susan J. Koch, “The Presidential Nuclear Initiatives of 1991-1992,” in *National Defense University Case Study Series No. 5* (Washington, DC: National Defense University Press, 2012).

# Abbreviations

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ACDA	Arms Control and Disarmament Agency
AEC	Atomic Energy Commission
ANF	Atlantic Nuclear Force
DOD	Department of Defense
FRG	Federal Republic of Germany
MLF	Multi-Lateral Force
NATO	North Atlantic Treaty Organization
NPG	Nuclear Planning Group
NPT	Non-Proliferation Treaty
NSC	National Security Council
PD	prisoner's dilemma
PRC	People's Republic of China
UK	United Kingdom

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