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POLICYANALYSISBRIEF

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Descending From the Summit
The Path Toward Nuclear Security 2010–2016 and Beyond

Summary and Key Findings

- This article reviews the motivations, strengths, and weaknesses of the nuclear security summits, both procedurally and substantively.
- The circumstances that provoked these meetings were unusual, if not unique, but their innovations in summitry and global governance will likely endure. These innovations include the state and multilateral voluntary commitments, progress reports, and an ongoing contact group.
- The meetings advanced nuclear security in important ways, but the nuclear security problem cannot be "solved." It will require a commitment to continuous improvement, including by leaders, and perhaps a return to the summit.

Why Nuclear Terrorism Is a Threat and Nuclear Security Matters

Near the peak of his popularity, President Barack Obama addressed an adoring throng overflowing Prague's Hradčany Square in April 2009. In a speech that helped him to win Nobel laurels, he explained why the nuclear terrorism threat is important and urgent, and summoned world leaders to defeat it:

> Today, the Cold War has disappeared but thousands of those weapons have not. In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. Testing has continued. Black market trade in nuclear secrets and nuclear materials abound. The technology to build a bomb has spread. Terrorists are determined to buy, build or steal one.
>
> [W]e must ensure that terrorists never acquire a nuclear weapon. This is the most immediate and extreme threat to global security. One terrorist with one nuclear weapon could unleash massive destruction. Al Qaeda has said it seeks a bomb and that it would have no problem with using it. And we know that there is unsecured nuclear material across the globe. To protect our people, we must act with a sense of purpose without delay. So today I am announcing a new international effort to secure all vulnerable nuclear material

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around the world within four years. We will set new standards, expand our cooperation with Russia, pursue new partnerships to lock down these sensitive materials.

And we should start by having a Global Summit on Nuclear Security that the United States will host within the next year.[1]

Nuclear Insecurity in Historical Perspective

Fear of nuclear terrorism, and efforts to prevent it, date from the morning of the atomic day, if not its dawn.[2] A year after the Trinity test, physicists Robert Oppenheimer and Edward U. Condon each warned that terrorists might command the power of the atom.[3] In the 1940s and 1950s, however, nuclear weapons technology lay beyond the reach of private citizens or groups, in the province of governments. Consequently, terrorism was seen as a threat that the Soviet Union would abet.[4]

Not until the 1960s did the US government evince concern that terrorists without a state sponsor might be able to detonate a nuclear weapon.[5] Following the disappearance of a large quantity of highly enriched uranium in 1965, the US Atomic Energy Commission for the first time required private holders of fissile material to secure it.[6]

A new and more malevolent form of terrorist seemed determined to use nuclear weapons.

In the 1970s and 1980s, a spate of vicious, but limited, terrorist attacks rocked Europe and North America. Kidnappings, bombings, assassinations, and hijackings drew Cabinet-level attention in the Nixon administration[7] and prompted new US rules governing physical protection of and accounting for nuclear materials.[8] Moreover, not only Americans dreaded the possibility of nuclear terrorism. In a 1972 debate at the United Nations, Soviet diplomat Dmitri N. Kolesnik foresaw terrorist theft of atomic bombs and the use of them to blackmail governments.[9]

Yet Kolesnik envisioned blackmail, not detonation, as the ends of nuclear terrorism. A later RAND study by terrorism expert Brian Jenkins was even more explicit in its assertion that, "While we cannot rule out the possibility of a 'large-scale Lod [Airport terrorist attack],' or holding a city for ransom with a nuclear weapon, the detonation of a nuclear bomb appears to be the least likely terrorist threat."[10] The US Office of Technology Assessment echoed Jenkins's conclusions but warned, "Nihilist groups may emerge."[11] Importantly, it also concluded that a small group of people without knowledge of classified information and with only modest equipment "could possibly design and build a crude nuclear explosive device."[12]

These analyses were reflected in the first publicly known National Intelligence Estimate on nuclear terrorism, dating from 1986. The mostly declassified estimate concluded that sophisticated terrorists could probably detonate a nuclear device if they had access to a stolen weapon or sufficient fissile material, but that they were unlikely to do so because it would defeat the political objectives of then-known terrorist groups. Key findings of the estimate included:

- High-level terrorism (e.g., detonation of a nuclear device) may be within the capabilities of a few terrorist groups. The constraints that exist against it, therefore, probably are behavioral.
- Most important, the fact that most terrorists place a high premium on the political consequences of their actions probably helps dissuade them from threatening terrorist acts that could lead to mass, indiscriminate casualties, because such a threat would alienate even those they consider to be sympathizers among the affected public.[13]

In the late 1990s, actions and statements by Aum Shinrikyo and Al Qaeda raised the prospect of weapons use, and the Central Intelligence Agency alerted policymakers to that possibility.[14] Finally, catastrophic terrorist acts after the turn of the millennium—the September 11 attacks and the horrific slaughter of schoolchildren and their parents in Beslan, Russia, to name two of many—removed any doubt that some terrorist groups sought to inflict as much carnage

as possible. The world confronted terrorists unbound by the political constraints that apparently bridled their predecessors in the 1970s and 1980s.

Washington was unnerved. The US government's worst nightmares grew from Osama bin Laden's reported August 2001 campfire conversation with a Pakistani nuclear scientist, discussing how Al Qaeda might acquire nuclear weapons.[15] For decades, US agencies had known that it was technically possible to fashion an improvised nuclear device. Since the early 1990s, there had been a score of seizures of weapons-grade fissile material outside of authorized control. Now a new and more malevolent form of terrorist seemed determined to use nuclear weapons.

Were this to occur, not only would tens or perhaps even hundreds of thousands of people perish or suffer grievous wounds, and economic damage many times the cost of the September 11 attacks be inflicted, but international commerce would be stunted to the detriment of billions of people,[16] and very likely war would ensue.

The best way to ensure that terrorists could not detonate a nuclear device is by preventing them from stealing a weapon or fissile material needed to make it. Fortunately, programs were already in place to do just that. They originated under legislation authored by US Senators Sam Nunn and Richard Lugar and signed by President George H. W. Bush in 1991. The act authorized efforts to secure, decommission, and dispose of weapons and material related to nuclear, chemical, and biological warfare, first in former Soviet states and eventually around the world. President Bill Clinton gave further definition to these efforts and began all of the major programs pursued by later administrations—from physical security upgrades at nuclear storage sites to highly enriched uranium (HEU) and plutonium disposition to improving border controls to detect and deter illicit trafficking. After September 11, President George W. Bush doubled the budgets for nuclear security assistance. Bush launched the 2005 Bratislava Initiative with Russian President Vladimir Putin, which increased the scope and pace of physical security upgrades in Russia and set a 2008 deadline for completing the work.

By the end of 2008, US programs to improve nuclear security had made enormous progress, particularly in Russia. For example, 52 research reactors in 30 countries had been converted from HEU to low-enriched uranium (LEU) fuel, and nearly two tonnes of fissile material had been removed to secure storage in the United States or Russia. Over 700 vulnerable radiological sites, containing material totaling over 9 million curies, had received upgrades. The United States provided 160 Russian border crossings with radiation detectors to deter and detect illicit nuclear trafficking, with Russia equipping a similar number. The US Departments of Defense and Energy completed physical security upgrades at 148 Russian nuclear weapons and material storage sites, ranging from Murmansk to Kamchatka. Finally, Russia had downblended nearly 400 tonnes of highly enriched uranium, which the United States purchased and used for power reactor fuel, accounting for about 10 percent of US electricity production.[17]

Still, much work remained to be done as Obama assumed office. After noting the substantial progress made by three previous administrations, Matthew Bunn, a scholar at Harvard University's Belfer Center for Science and International Affairs, cataloged some of the unresolved problems on the eve of the first nuclear security summit, in 2010:

> Terrorists are seeking nuclear weapons, and the materials needed to make them are still housed in hundreds of buildings and bunkers in dozens of countries—many in urgent need of better security. There have already been 18 documented cases of theft or loss of plutonium or highly enriched uranium, along with incidents that provide striking evidence of security weaknesses—including a 2010 break-in by unarmed peace activists at a Belgian base where US nuclear weapons are reportedly stored and a 2007 armed attack on a South African site housing hundreds of kilograms of HEU.[18]

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Why Climb to the Summit?

"It is not easy to see how matters could be worsened by a parley at the summit,"[20] said Winston Churchill, introducing the metaphor with an uncharacteristically tentative argument. Today, summit meetings seem almost unremarkable, yet a convocation of top leaders was not always assumed to be desirable or necessary. Some historical perspective illustrates the boldness of Obama's decision to host a nuclear security summit.

For America, real summitry began less than a century ago, with Woodrow Wilson at the Paris Peace Conference in 1919.[21] The dubious results from Paris, the September 1938 meetings between Neville Chamberlain and Adolf Hitler producing the disastrous Munich Agreement, and the bitter aftertaste of the Yalta accords likely sapped even Churchill's enthusiasm for his summit proposal. They illuminate the first inherent problem with summit meetings: They entail risk that things will go wrong, and at extreme altitudes even small mistakes can prove fatal.

"[Summitry] is made possible by air travel; it is made necessary by weapons of mass destruction."[19]

–David Reynolds

At Yalta, Churchill's permanent under-secretary for foreign affairs, Alexander Cadogan, raised a second inherent weakness of summit meetings: Heads of state are not always prepared to solve important and complicated problems. Cadogan carped privately, "It's always the same with these Conferences: they take days to get on the rails. The Great Men don't know what they are talking about and have to be educated, and a bit more tidy in their methods."[22] Nuclear security is a specialized and technical topic, generally beyond the experience of "Great Men" (and Women), and most of the decisions affecting it are taken at levels far below the heads of state.

A third inherent problem with summit meetings is that failure at the top to achieve a successful outcome can foreclose other opportunities to reach negotiated agreements. Therefore, diplomats and White House staff usually seek to involve heads of state either at the symbolic conclusion of a deal, whether political or formal, or when all other efforts to break an impasse have failed. This makes summit meetings the last resort as tools for solving policy problems, not a first option. Leaders, too, usually prefer meetings where the outcome is assured and the risk of failure is not great.

The nuclear security summits also had particular disadvantages due to their organization and agenda. These affected procedural and substantive aspects of the meetings.

First, the summits were very large. The opening meeting included 47 nations, 38 represented at the head of state or government level. Indeed, the 2010 Washington summit was then the largest gathering of leaders since the United Nations organizing meeting in 1945. Not only was this an enormous logistical undertaking, but the sheer size of the meeting limited the scope and depth of dialogue. For each head of delegation to speak even for ten minutes would have taken more than eight hours, and no leader had the patience for that. Thus, summit organizers were forced to create unique agendas, including a scenario-based discussion unprecedented for meetings at that level. Moreover, much of the substantive work would have to be accomplished prior to the leaders' meeting.

Second, the meetings were both regular and finite, an unusual combination. The nuclear security summits were held biannually from 2010 to 2016. They were neither part of an ongoing series of meetings with open-ended topics, like the G-7, which can create a commitment to a lasting process, nor one-off conferences aiming to resolve a specific problem, which can promote a sense of urgency.

Third, the nuclear security summit agenda was extremely narrow for any meeting of heads of state, let alone for four such conferences, involving scores of leaders, over six years. Government leaders typically meet on a broad range of security, economic, and transnational issues (e.g., G-7 meetings) or at least on the full spectrum of one of those topics (e.g., NATO summits), or, failing that,

to conclude an important agreement (e.g., the climate change conferences). Bilateral meetings on the margins of the nuclear security summits provided some opportunities for broader agendas but could not fundamentally alter the scope of the conferences.

The particular nuclear security summit problems compounded the inherent issues common to all top-level meetings and led to "summit fatigue," which Belgium's "sherpa,"[23] Ambassador Werner Bauwens, explained: "[T]here is the unavoidable summit fatigue or summit overkill. I have done four summits with four different Belgian leaders, but the atmosphere is a bit like it is in tourism: I have seen it. I have done it. The drive goes and that is normal… ."[24]

Given the dangers and disadvantages associated with summit meetings, why did Obama choose to summon his peers to meet on nuclear security? He first mentioned such a gathering in background materials issued after a campaign appearance at Purdue University in July 2008,[25] where he pledged, "And I'll lead a global effort to secure all loose nuclear materials around the world during my first term as President."[26] According to a senior US official who attended all four meetings, there were multiple reasons for selecting the summit route.[27,28]

The main value [of the meetings] was to create an action forcing event–because leaders wanted to come to summit with some tangible achievements to display.

First, inviting leaders to the summit invoked Obama's enormous personal popularity to attract his counterparts and make a successful outcome more likely. International confidence that the US president would "do the right thing in world affairs" jumped by an eye-popping average of more than 38 points from 2008 to 2009 in 24 nations surveyed by Pew Research. In half those states, such confidence was shared by more than 70 percent of respondents.[29] Hence, foreign leaders wanted to be seen with Obama, and if discussing nuclear security was the cover charge, they were happy to pay it.

Second, summit meetings could generate quick results. The Prague speech called on nations to "act with a sense of purpose without delay." Unlike treaty negotiations or even revision of formal international standards, summit meetings could bring tangible improvements to nuclear security within months, not years or decades. Against the urgent problem of nuclear terrorism, the White House opted for rapid action and a schedule it could better control.

Third, summit meetings could cut through red tape. Especially before the first summit, many projects—including physical security improvements, conversion of reactors from HEU to LEU fuel, fissile material removals—were in the works but had not received final approvals, mainly for bureaucratic reasons. The repeated deadlines established by successive summits necessarily focused energy on fulfilling these efforts.

Fourth, the summits drew high-level attention to the problem of nuclear security. Inevitably, the process of sherpa meetings, preparing leaders for their roles, and the natural desire of leaders to announce accomplishments (fully encouraged by their hosts), led to internal dynamics within states to examine nuclear security issues and to make progress on them. One can imagine a leader saying to a subordinate, "I am going to Washington to meet with Obama and I don't want any incidents that might embarrass me on this matter." American policymakers were mindful that meeting at the summit also had the advantage of raising public awareness (although in many cases publics remained confused about the exact scope of the meetings).

Fifth, a meeting of leaders underscored a principle the US team repeatedly tried to inculcate: that heads of state or government bear a responsibility for the security of fissile material that cannot be delegated.[30] This principle was borrowed from the private sector, where chief executive officers of corporations with fissile material accept an analogous burden. It was tangibly demonstrated by the leaders' presence at a meeting focused exclusively on nuclear security.

Sixth, the framers of the nuclear security summits sought to use them to "empower, elevate, energize, and enhance international organizations and

instruments," such as Interpol and the International Atomic Energy Agency (IAEA), by placing their leaders on a visible platform with heads of government and state.[31]

Gary Samore, who managed the summits during the first Obama term, summarized the administration's views on the summits' advantages: "The main value [of the meetings] was to create an action forcing event—because leaders wanted to come to summit with some tangible achievements to display. Hence, the idea of 'house gifts' and eventually 'gift baskets.'"[32]

House Gifts, Gift Baskets, and Progress Reports

The nuclear security summits also involved an important substantive difference from other high-level meetings. More than in most realms of international relations, participating nations' interests were coincident, not competitive, and unilateral efforts to improve nuclear security would not put those states undertaking them at a disadvantage relative to their peers. This is a different dynamic than that which is customary in the areas of arms control, trade, or carbon-emissions reduction. In those fields, acting alone can impose costs reckoned in weakened national security or diminished commercial competitiveness.

Without the high-level attention and urgency created by leaders demanding something to show for their efforts, [gift-basket diplomacy] is unlikely to have the same impact.

Such is not the case with nuclear security, where the paradox of the commons is absent.

While a state taking unilateral action to improve controls over its nuclear weapons and materials will not be as secure as it would be if there were universal action, it would nonetheless be somewhat safer and would not suffer great disadvantages for having acted first or alone. Security costs, while not trivial, are tiny compared to the potential consequences of nuclear terrorism, and small even compared to most overall nuclear-operations budgets.

This dynamic led to the most important innovation of the summits: national and group commitments to specific actions to improve nuclear security (see Appendix). The former were termed house gifts, the latter gift baskets. At the first summit, Washington actively encouraged other governments to bring announcements of nuclear security actions to the meeting; at subsequent meetings, leaders built on this idea with collective commitments. According to Michelle Cann et al.:

> "Gift basket diplomacy" has been one of the most important and unique innovations of the summit process. These multilateral political commitments cover a wide range of technical, educational, and legislative issues that are necessary for improving global nuclear security. They emphasize the importance of regional and international cooperation and allow states to effectively cooperate on issues of mutual concern.[33]

This innovation could be used at the forums and organizations slated to carry on the work of the nuclear security summits, but without the high-level attention and urgency created by leaders demanding something to show for their efforts, it is unlikely to have the same impact.

Moreover, the approach yields relatively rapid results, without the pitfalls of the least-common-denominator diplomacy that too often besets a large group of countries attempting to negotiate treaties or international standards. Cann et al. elaborated:

> This approach focuses less on members' ideals and overarching aims than on how states can work together on issues of mutual concern. It is a form of multilateral, voluntary commitment-making that supplements broad statements with practical, near-term objectives.[34]

Even more could have been made of this dynamic at the summits, for example, by committing states to implement the pending amendment to the Convention on Physical Protection of Nuclear Material even before it entered into force.

The nuclear security summits also featured progress reports designed to introduce accountability for fulfilling pledges made at prior meetings. Knowing that such reports would be expected, leaders were incentivized to act.

Action Beneath the Surface

Scholars of modern summitry cite the importance of the sustained interpersonal and organizational relationships created by recurrent meetings. Such interactions are commonplace at recurring meetings and were no less important in the realm of nuclear security. Alan Alexandroff described the "iceberg theory" of summits by noting, "Many relevant institutions and transgovernmental networks are tasked by leaders and their ministers and working groups to prepare the agendas, action plans, and reports that are in part the outputs of global summitry."[35] This work goes on below the "waterline," largely invisible to the public but often crucial to effective action.

At the nuclear security summits, these connections proved so valuable that although the summits have ceased, the diplomats who organized them will continue to meet. According to the White House:

> These Sherpas cut across multiple agencies to form a tight-knit community of action. This community will be carried forward after the 2016 Summit as a "Nuclear Security Contact Group" that will meet regularly to synchronize efforts to implement commitments made in the four Summit Communiqués, national statements, gift baskets, and Action Plans. Recognizing the interest from those who have not been part of the Summit process, this Contact Group will be open to countries that wish to promote the Summit agenda.[36]

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Moreover, industry summits and nongovernmental organization or "knowledge" summits supplemented the heads of state and government meetings. These supplemental meetings brought considerable intellectual, experiential, and financial resources to the process. They both helped to define the governmental agenda and added to it. Indeed, the idea of a four-year effort to secure all vulnerable nuclear material originated with Matthew Bunn and Anthony Wier.

Another, less successful example of attempted influence by nongovernmental organizations over the outcome of the leaders' summits concerned the concept that heads of state and government hold a responsibility for nuclear security that they cannot delegate. Sherpas and academic experts discussed the "undelegatable responsibility" at several Global Dialogue meetings hosted by the Nuclear Threat Initiative. US government officials ultimately agreed to the principle and attempted to insert it into the 2016 communiqué. After negotiations with other governments, however, the result was a faint echo of the initial idea. The final communiqué noted blandly, "We, as leaders, are conscious of our responsibility."

The Carnegie Corporation of New York and the MacArthur Foundation added to the tangible results of the summits by pledging to grant up to $25 million for "work to secure nuclear materials and reduce the threat they pose."[37]

Joyce Connery, who helped manage the 2010 summit, explained that nongovernmental organizations:

> have the ability to gather people and say some things that we can't say as the government: produce scholarly materials, which we use as reference material; talk to Congress and help increase our funds; and make sure that there's a security awareness in the media, in Congress, and the public at large that the government would not have the capacity to do.[38]

The nuclear industry summits also convened corporate representatives from approximately 35 countries. Industry participation is important because much nuclear and radiological material and many large nuclear facilities reside in private hands. The Joint Statement of the 2016 Nuclear Industry Summit committed participants to securing effectively all nuclear and radiological

materials at least to IAEA standards, continuously improving nuclear security practices through seven separate steps, enhancing security culture, and improving cybersecurity. If implemented, these commitments will undoubtedly strengthen nuclear security.[39]

Summit Achievements

The tangible achievements of the nuclear security summits are substantial. By the Obama administration's reckoning:

- Over 40 summit countries have engaged in capacity building, whether through training, Centers of Excellence, or exercises.
- Over 30 countries have updated national laws, regulations, or structures relating to nuclear security.
- Over 20 countries have held or invited peer review missions, either bilaterally or through the IAEA's International Physical Protection Advisory Service.
- Three more countries—China, India, and Jordan—have pledged to strengthen nuclear security implementation through subscribing to the 2014 Joint Statement on Strengthening Nuclear Security Implementation (INFCIRC 869), bringing the total number to 38.
- Eighteen countries have taken steps to increase the security of radioactive sources.
- Seventeen countries have been involved in removal or disposal of nuclear materials or minimization of HEU.
- Sixteen countries have ratified nuclear security treaties or taken particular steps to implement them.
- Fifteen countries have carried out physical security upgrades or acquired security or detection equipment.
- Twelve countries have joined or launched new international or regional structures to support nuclear security cooperation.
- Twelve countries have indicated their financial contributions to support bilateral or international cooperation in nuclear security.
- Ten countries noted steps taken to support or implement United Nations Security Council Resolution Resolution 1540 (UNSCR 1540).[40]

Complacency is the single greatest threat to nuclear security, and the summits pierced it.

Moreover, during the span of the summits, 13 countries and Taiwan rid themselves of HEU, allowing more than three tonnes of fissile material to be consolidated to secure storage in the United States or Russia. The amended Convention on the Physical Protection of Nuclear Material gained sufficient ratifications to enter into force, in part because of the political force exerted by the summits. Thirty-two buildings storing weapons-usable fissile material received physical security improvements. And 328 border crossings were equipped with radiation detectors to combat illicit trafficking of nuclear or radiological material.[41]

The nuclear security summits also made an important contribution by raising awareness of the issue. Complacency is the single greatest threat to nuclear security, and the summits pierced it.[42] The process of making nearly 300 national commitments, nearly 50 joint commitments, and dozens of national reports of progress since the last meeting, focused governments' attention and resources on the problem. Preparing and answering to national leaders on the subject of the meeting inevitably raised the profile of the issue within some 50 governments. This greater awareness also helped to slice through red tape that had impeded tangible progress, for example, by reaching final agreements on long-planned reactor conversions and material removals.

Remaining Gaps

While the nuclear security summits' achievements are substantial, they did not resolve the issue of nuclear security. Lacunae remain in standards for and implementation of protection of fissile material capable of being used to make nuclear weapons.

No Specific and Legally Binding Standards for Nuclear Security

More than ten years after it was agreed on, and 15 years after the catalyzing September 11 attacks, the amended Convention on the Physical Protection of Nuclear Material and Facilities entered into force. Although it is legally binding, it is not specific. According to Matthew Bunn, "While containing some useful principles, the amended convention contains no particular standards for how secure nuclear material should be. It says that countries should set national rules for nuclear security, but says nothing about what those rules should say."[43] Furthermore, the amended convention is limited to material and facilities "used for peaceful purposes," excluding the 83 percent of fissile material stocks held by military establishments.

Similarly, UNSCR 1540 requires states to, among other things, implement "appropriate, effective" security measures over all nuclear material within their territory but gives no further detail on what such security entails.

The Strengthening Nuclear Security Implementation gift basket, originally subscribed to by 35 nations in 2014 and joined later by Jordan, India, and China, adds somewhat to the specificity standards, but it is a political commitment, not a legal obligation.

Lest this gap be taken as an insignificant omission, consider that it was only after the November 2015 Paris bombing and shooting attacks that Brussels moved to place armed guards at Belgian nuclear facilities, some of which contain HEU,[44] and that other states with fissile material or nuclear facilities still have no such requirement.

The view that there is nothing more for world leaders to do on the issue of nuclear security oozes complacency.

Russia's Absence a Severe Blow

Russia boycotted the 2016 meeting, held in Washington. Moscow is the world's largest holder of fissile material and nuclear weapons, and its absence opened an enormous gap. Moreover, Russia faces threats to nuclear security from government-wide budget cuts, endemic corruption, entrenched organized crime, and spreading Islamic extremism.[45,46,47] The virtual end to US-Russian nuclear security cooperation within the Russian Federation further compounded these problems.[48]

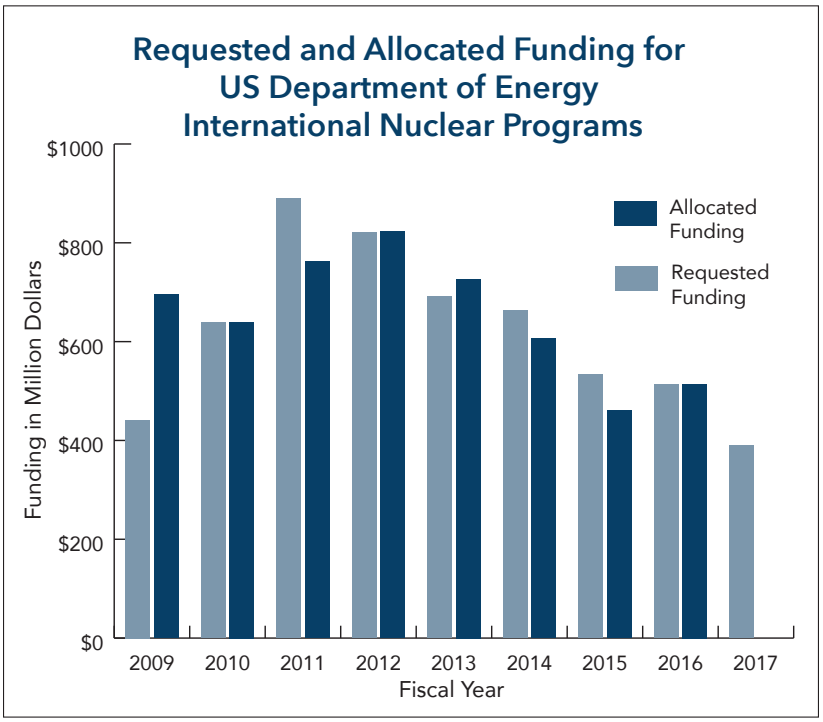
Still, the Russian Foreign Ministry objected to what it saw as a heavy hand by summit organizers—suppressing dissenting views on how the meeting should be organized,[49] exerting "unacceptable" interference in the work of international organizations such as the IAEA,[50] and relentlessly pursuing a summit agenda that had already played out. Very likely, reciprocal recrimination and sanctions between Washington and Moscow after Russian use of force in Crimea, eastern Ukraine, and Syria also left the Kremlin in no mood to trek to Washington for an American pet project. Finally, because the nuclear security summits were so closely identified with Obama from the outset, his reportedly difficult personal relationship with Putin may have cost him the presence of the Russian leader.[51] Obama's personal appeal, an asset at the outset, became a liability in the end.

Conditions on the Ground: Stubborn Complacency, Slowing Momentum

Russia's final reason for its absence from the 2016 Washington summit was, "The political agenda of these meetings has been exhausted."[52] The view that there is nothing more for world leaders to do on the issue of nuclear security oozes complacency. That dangerous attitude, however, is not limited to Russia.

It infected operations at the Y-12 National Security Complex, where an 82-year-old nun and two others pierced several security barriers surrounding the main US storage site for HEU.[53] It manifested itself with South Africa's dismissive reaction to a break-in at the Pelindaba nuclear facility, which holds hundreds of kilograms of HEU from its abandoned nuclear weapons program. Although Pretoria has since taken steps to strengthen protections, according to US Department of Energy expert Roger Johnston, anyone who held the views reflected in South Africa's first response "hasn't really thought through the security issues—because if they had, they would be sweating bullets. It's just not a business where you should ever be confident."[54] Moreover, evidence of complacency extends beyond anecdotes. According to a survey by Matthew Bunn and Eben Harrell, security officials in many countries still see nuclear theft or sabotage as implausible.[55]

At the close of the 2014 Hague Nuclear Security Summit, Obama urged his colleagues, "[I]t is important for us not to relax, but rather accelerate our efforts over the next two years, sustain momentum so that we finish strong in 2016."[56] Unfortunately, nuclear security progress is slowing, budgets are declining, and important projects remain undone. Only weeks before the last summit, Obama submitted a budget that again substantially cut funding for nuclear security cooperation—by 24 percent from the previous year's appropriation.[57]



Source: Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, *Preventing Nuclear Terrorism: Continuous Improvement or Dangerous Decline?*, Project on Managing the Atom, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, March 21, 2016, p. 84.

The Obama administration argues that the completion of many projects and the end of work in Russia make such cuts inevitable. Yet as late as 2013, the administration anticipated spending almost double what it eventually requested for fiscal year 2017.[58] Moreover, it is undeniable that progress is being foregone. For example, despite the fact that 74 civil research reactors continue to use HEU fuel,[59] the pace of worldwide reactor conversions from HEU to LEU slowed from 18 to 9 from 2009 to 2014, versus the previous five-year period (although closures increased, mainly in Russia, and the barriers to some conversions are technical).[60]

Military Material

Fissile material held by military programs, whether in weapons, production stocks, reactor fuel, or declared as surplus to needs, amounts to about 83 percent of the 1,366 tonnes of HEU and 507 tonnes of plutonium estimated to exist.[61] Therefore, its security matters as much as or more than protection of civil stocks.

Many governments with military nuclear programs refuse explicitly to include those programs in international discussions and agreements on nuclear security because of their fundamental role in national security and consequent laws and regulations imposing secrecy. The IAEA has no jurisdiction over military stocks, and therefore neither does its guidance on physical protection of nuclear materials and facilities.[62,63] The amended Convention on the Physical Protection of Nuclear Materials excludes military stocks,[64,65] as does the Terms of Reference for the Global Initiative to Combat Nuclear Terrorism (GICNT).[66]

It is untrue, however, that military stocks are excluded from all international deliberations on nuclear security. First, even discussions, actions, and guidance on civil stocks have an implicit application to military materials. It is hard to believe, for example, that the IAEA's guidance has not informed those with responsibility over military inventories, especially because some of them participated in developing that guidance. Moreover, while the GICNT's Terms of Reference excludes military programs, officials from those programs have

often attended its meetings. Second, UNSCR 1540 covers all such inventories—civil and military. Third, the first nuclear security summit communiqué explicitly includes military programs, recognizing "the fundamental responsibility of States . . . to maintain effective security of all nuclear materials, which includes nuclear materials used in nuclear weapons, and nuclear facilities under their control... ."[67]

Nonetheless, for some governments, secrecy is security. Military stocks will, therefore, remain less transparent, and their security measures less subject to international scrutiny. The tension between the confidentiality of national security programs and international confidence that all weapons and materials are being protected to the highest standards will endure. The nuclear security summits, however, starting from the first communiqué, helped to reduce this tension.

Next Steps

The principal advantage to the nuclear security summits was to provide "political momentum behind something that is inherently a group of technical challenges," according to Anne Harrington, deputy administrator of the National Nuclear Security Administration.[68] Moreover, she also noted that in the process of educating leaders for the meetings, all levels of states' bureaucracies became better informed, as the briefings moved higher within governments; if the leader had to know, the minister did, too, and so on. How, then, should governments maintain this momentum and awareness now that the nuclear security summits have ended?

Five Action Plans

At the 2016 summit, the leaders agreed to support efforts at five international entities to carry on their work, establishing a voluntary action plan for member states.[69] Through a gift basket, they also created a 40-nation contact group at a senior level and open to all states, including those that had not attended the summits.

The action plans for member states are in support of the United Nations, the IAEA, INTERPOL, the Global Initiative to Combat Nuclear Terrorism, and the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

The action plan in support of the United Nations focuses on improving implementation of UNSCR 1540 and the International Convention on the Suppression of Acts of Nuclear Terrorism (which requires states to establish criminal statutes against such acts) through assistance, coordination, and cooperation among member states.[70] Attending to the weaknesses in implementing UNSCR 1540 is vital because many states require assistance to establish the laws, regulations, and governmental structures to take effective action. Furthermore, coordination of assistance efforts under the resolution remains elusive without a strong UN secretariat to organize the program. Consequently, many states still maintain "weak systems for controlling trafficking in nuclear commodities."[71]

The action plan in support of the IAEA supports regular ministerial meetings on nuclear security, which, with the end of the summits, will be the highest-level regular dialogue on the matter. If political momentum is to be maintained, it might come from these meetings. Such momentum may be difficult to muster given the IAEA's modus operandi that often devolves into sequential speeches by dozens of leaders that few of their peers have the patience to sit through. The plan also supports a broad agenda to increase and strengthen IAEA activities on such topics as security standards, nuclear forensics, security culture, and information and cybersecurity.[72]

The action plan in support of INTERPOL aims to increase operational information sharing and law-enforcement capabilities to combat nuclear trafficking.[73] The sharing of intelligence and law-enforcement information is vital to lead to efforts

While still not closing the gaps cited earlier, if these actions are implemented, important forward momentum toward improving nuclear security will continue.

to stop would-be nuclear criminals, the importance of which was underscored by recent terrorist interest in nuclear facilities in Belgium.

The action plan in support of the Global Initiative to Combat Nuclear Terrorism promises to expand efforts to build capacity, conduct tabletop and field exercises, and coordinate other efforts.[74] The initiative was intended to provide the practical means to implement some of the requirements of UNSCR 1540, especially for states with limited experience in nuclear matters.

The action plan in support of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction seeks to coordinate and focus efforts to build capacity through partnership matching and centers of excellence. Importantly, it also pledges to engage G-7 leaders on nuclear security.[75]

All told, the action plans contain 137 commitments to specific actions advancing nuclear security. While still not closing the gaps cited earlier, if these actions are implemented, important forward momentum toward improving nuclear security will continue.

Contact Group

Recognizing the need for "sustained action and ambition," 40 countries, INTERPOL, and the United Nations formed a contact group "with the objectives of advancing implementation of nuclear security commitments and building a strengthened, sustainable and comprehensive global nuclear security architecture." They will convene at least annually at a senior level to assess progress and identify additional steps that may be necessary.[76] They can also ensure that gaps and overlaps among the five work plans are addressed and resolved. Additionally, they can work to ensure that synergies in the work of the international organizations and voluntary initiatives are maximized by filling gaps and minimizing duplication of efforts by the five organizations. This arrangement has the potential to sustain the important iceberg work of coordinated action by governments, even without the benefit of additional summits. Because of this, it may be one of the most important enduring accomplishments of the nuclear security summits. To succeed, though, it will require sustained, high-level attention by US diplomats in the next administration.

The convergence of several factors unlikely to recombine in identical circumstances means the nuclear security summit experience might not recur. Nonetheless, some of the innovations created by those summits will likely be replicated.

Conclusions

The nuclear security summits contained several innovations and uncommon characteristics. They were large gatherings focused on a narrow topic. Initially, this energized rapid action, but it later led to summit fatigue. House gifts and gift baskets were innovations that capitalized on the nature of the nuclear security issue, which does not impose the same penalties for first or unilateral actions that might inhere in other areas of international diplomacy. The interaction among leaders also included unique elements, including scenario-based exercises at the 2014 and 2016 summits, which, despite early misgivings, proved highly successful.[77] The nuclear knowledge summits and the nuclear industry summits built on the iceberg experience from other top-level meetings and elaborated on it with joint statements, gift baskets, and deeper interactions with leaders.

The convergence of several factors unlikely to recombine in identical circumstances—an important and urgent problem affecting the security of all nations, a newly elected American president committed to addressing the issue and enjoying unprecedented international popularity, and a ready agenda of necessary and feasible actions—means the nuclear security summit experience might not recur. Nonetheless, some of the innovations created by those summits—gift baskets and national commitments, progress reports, a contact group outliving the summit meetings, and scenario-based discussions by leaders—will likely be replicated. The summits undeniably advanced progress to ensuring that terrorists will be unable to obtain nuclear weapons or fissile material. Yet that progress remains incomplete. Many of the easy actions have

been taken, political frictions between Washington and Moscow have eroded the shared sense of commitment that once animated the two largest nuclear powers, and the tension between natural tendencies toward complacency and a commitment to continuous improvement remains unresolved.

The success or failure of the summits will be measured by the achievements of follow-on efforts. How will the gaps be closed? How will commitment to the need for continuous security improvement become universal? How will heads of state and government recognize that they cannot delegate responsibility for nuclear security any more than can chief executive officers of corporations with fissile material?

Recommendations

The following recommendations begin to answer these questions, but they will require elaboration as security conditions evolve.

1. The nuclear weapons states recognized under the Nuclear Non-Proliferation Treaty should share best security practices and lessons learned from failures, first with each other and later with other states holding fissile material stocks. A promising start to this effort would be for the United States and Russia to take an empirically based approach to defining effective security measures, building on their joint work to secure Russian nuclear facilities. By simply describing the work they did, they could avoid controversies often created during negotiation of international standards. Specific, tactical details too sensitive to reveal could remain confidential while still providing sufficient detail to form the basis of de facto standards. This effort would have the added advantage of helping to rebuild nuclear security cooperation with Russia.
2. The United States and Russia should renew their commitments to joint efforts to improve nuclear security, both in their own countries and elsewhere, through bilateral cooperation and their leadership of the Global Initiative to Combat Nuclear Terrorism. Strains in the US-Russia relationship are real and important, but so is the threat of nuclear terrorism and the need for the two largest nuclear powers to work together to address it. The relationship should be an equal partnership, not the donor-recipient arrangement of the 1990s and 2000s.
3. The next US administration should consciously and energetically build on the nuclear security work of the four previous administrations. A great advantage of US programs in this realm is that they have enjoyed bipartisan support. Each successive administration and Congress has added to the effort. While the nuclear security summits will inevitably be identified with Obama, their work programs transcend the presidency and remain vital to US and international security.
4. World leaders must continue to recognize and fulfill their undelegatable responsibility for the security of nuclear material and facilities within the territories they govern. Only at the level of heads of state and government is priority commensurate with the stakes at risk given the problem. Leaders should return to the issue, assess progress, and mandate further actions every four years on the margins of G-20 summits (supplemented as necessary with additional invitations). This would address the summit fatigue issue while maintaining high-level oversight of and responsibility for nuclear security. It would also energize the work of the contact group.
5. The contact group should be used informally to review progress, develop new work programs, fill gaps, and minimize redundancy of effort in the work of the five organizations tasked with carrying on the work of the summits.

The success or failure of the summits will be measured by the achievements of follow-on efforts.

The nuclear security summits materially advanced protections on fissile material and thereby diminished the likelihood of a successful nuclear terrorism attack. They did not, however, solve the nuclear security problem. The nuclear terrorism threat remains real and urgent. As long as nuclear weapons and weapons-usable material exist in the world, a continuous commitment to nuclear security improvement will be required. The end of the summits presents the risk of diminished effort, and perhaps even increased complacency, as leaders turn their attention elsewhere. The descent from Everest is far more deadly than the ascent.[78] Government leaders, diplomats, and technical experts must devote concerted, diligent, and energetic efforts to improving nuclear security if we are to avoid increased peril in the descent from the nuclear security summits.

Appendix
Summary of Nuclear Security Summit National Commitments

2010	More than 70
2012	More than 100
2014	More than 100
2016	About 12

Exact counts are subject to some definitional uncertainty, as it is sometimes difficult to distinguish between ongoing efforts and new commitments. Every summit-participating nation made at least one national commitment.

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