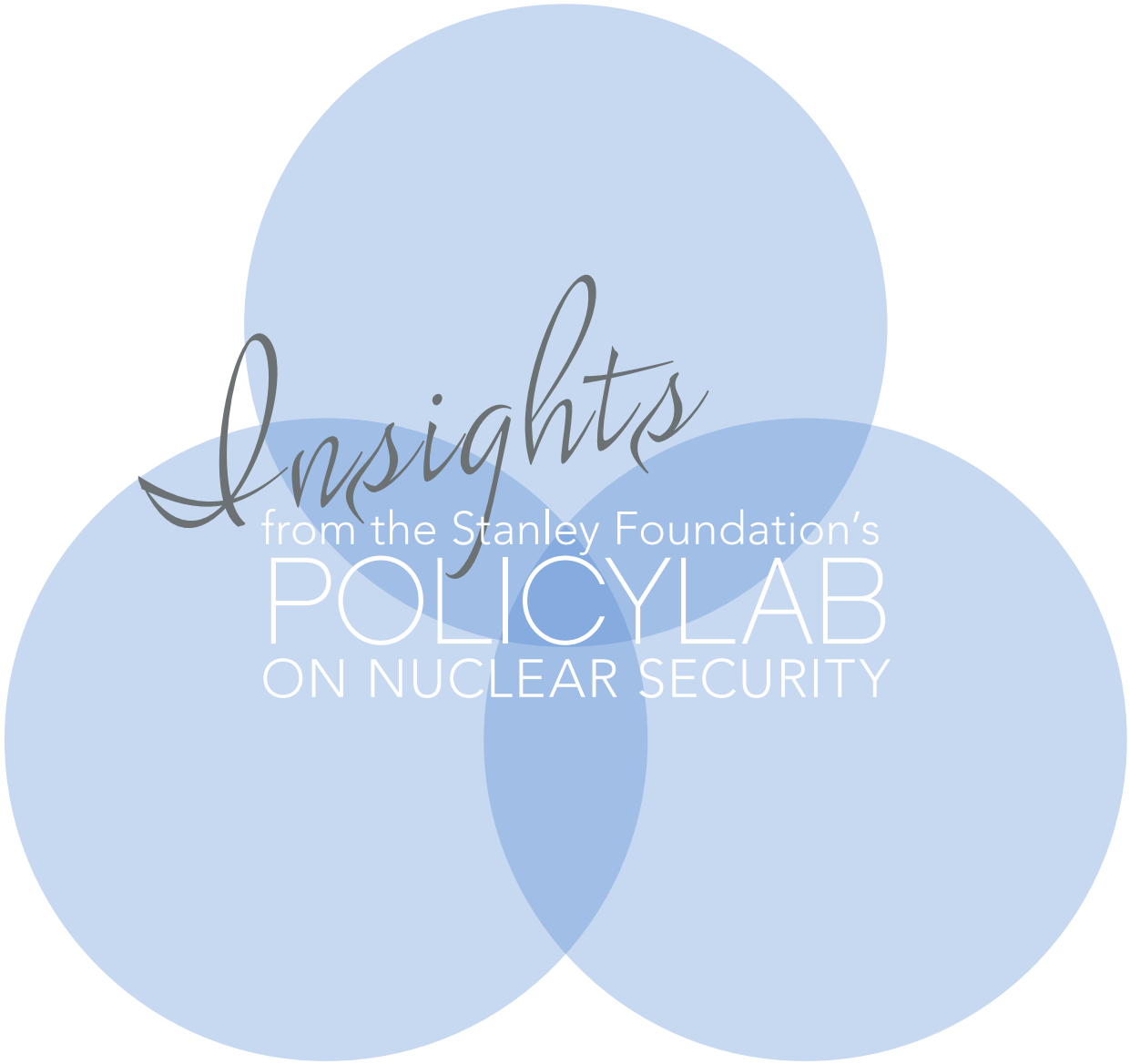

Risks and Fragmentation: Challenges and Strategies for Nuclear Policy Advocacy

By Elizabeth Turpen

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Insights from the Stanley Foundation's Policy Lab on Nuclear Security

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The facilitator, Elizabeth Turpen, prepared this report following the Stanley Foundation's Policy Lab. It is a summary of the insights gained from interviews she conducted in advance of and ideas generated in the policy lab, not merely a descriptive account of discussion in the policy lab. Neither those interviewed nor policy lab participants reviewed or approved the report. Therefore, it should not be assumed that they subscribe to the recommendations, observations, and conclusions in this report.

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Executive Summary

It is often said that while the number of nuclear weapons has decreased since the height of the Cold War, the risk of nuclear weapons use has increased. Yet as countries and multilateral institutions work to roll back rising nuclear dangers, the broader nuclear policy field often struggles to maintain focus and promote unifying strategies for addressing these dangers. This reflects a fragmented nuclear policy community, partially due to siloed expertise and competing prioritization of the risks. This fragmentation makes shared policy priorities and coordinated action elusive. Also, while the risks are monumental, the strategies for addressing them are disproportionately small and tactical.

To gain a comprehensive view of the nuclear policy needs and opportunities, the Stanley Foundation commissioned an interview-based external assessment and then hosted a two-day Policy Lab on Nuclear Security with a diverse group of nuclear policy experts. This document synthesizes insights from this process. It summarizes what participants identified as the major nuclear risks, strategies for addressing them, and major challenges and opportunities for the nuclear policy community.

Nuclear Risks and Needed Policy Shifts

- **Breakdown of the Grand Bargain.** Widespread concern about the continued viability of the Nuclear Non-Proliferation Treaty (NPT) touches on two interrelated trends: (1) mounting frustration with the lack of progress on disarmament and (2) the success of the Humanitarian Impact of Nuclear Weapons movement. Mitigating this risk requires reviving disarmament, including security concerns in the humanitarian discourse, and protecting the NPT.

- **US-Russia Stalemate.** US-Russia arms-control and technical cooperation have come to a standstill. The breakdown in bilateral relations comes at a time when strategic stability is being undermined. Arresting and reversing the erosion in US-Russia relations is an urgent need.

- **Collapse of the Joint Comprehensive Plan of Action (JCPOA).** A breakdown in JCPOA implementation would have catastrophic consequences for the NPT and is perceived as the most vulnerable fail point in the nonproliferation regime. The existing dynamic with Iran needs to move beyond simply implementing the deal and toward a cooperative approach that encourages a shift in Iran's behavior.

- **Strategic Instability in South Asia.** The risk of nuclear use remains highest in South Asia, with the India-Pakistan arms race intensifying the danger. Arms control, transparency, and reciprocal escalation-control measures are needed to reduce the risk of use.

- **North Korea's Nuclear Ambitions.** North Korea presents an urgent challenge, given the pace of advancement in its nuclear and missile programs. A renewed commitment to the pursuit of a nuclear weapons-free peninsula and normalization of US-North Korea relations is needed. The United States must also build trust in its security guarantees and reduce regional allies' incentives for nuclear weapons acquisition.

- **An Uncertain Future for Nuclear Security Governance.** The end of the Nuclear Security Summit (NSS) process surfaces three urgent issues: (1) fatigue and underlying cynicism with the agenda, (2) a fissure between states that were part of the NSS process and those left out, and (3) the inattention to the security of military materials. Ongoing high-level policy discussions to shift attitudes within governments as well as incentives to ensure implementation by operators and industry are required to address all three.

- **Limited Constraints on Emerging Technologies.** Emerging technologies can increase the risk of nuclear use. To reduce the risk requires exploration of the responsible development of these technologies, the implications for the conduct of war, and the evolution of policies and guidelines grounded in international law.

Opportunities and Strategies to Address These Risks

- **Bridge the Deterrence-Disarmament Divide.** Convene unofficial discussions across the disarmament-deterrence divide, pursue procedural and process tweaks in the lead-up to the next NPT Review Conference, and initiate a dialogue between the nuclear weapon states and the humanitarian initiative.

- **Address the US-Russia Stalemate and Modernization Concerns.** Convene Track 1.5 dialogue targeting the extension of New START; build support for the Open Skies Treaty, the Organization for Security and Cooperation in Europe, and the NATO-Russia Council to lower regional tensions; and advance trilateral arms control with US-Russia-China to address other strategic risks.

- **Implement the JCPOA and Next Steps.** Foster and promote US congressional and public understanding of and support for the deal, and establish US-Iranian technical cooperation on energy.

- **Address Instability in South Asia.** Engage and promote young scholars and professionals beyond military objectives, leverage scientific cooperation to promote transparency and foster trust, promote international or US-coordinated assistance on renewable energy planning and development, and prioritize South Asia and its nuclear issues as a critical part of US Asia policy.

- **Establish a Global Nuclear Security Regime.** Transfer the NSS agenda to the G-20 rather than the International Atomic Energy Agency (IAEA), convene relevant officials from the five entities addressed in the NSS Action Plans, combat complacency through sharing of threat information, support and further the commitment to IAEA Information Circular 869 through outreach and technical assistance, address the policy gap regarding military materials, address the plutonium fuel cycle through direct disposal under IAEA safeguards in a multilateral format, explore financial incentives that would catalyze greater industry involvement, and facilitate multistakeholder meetings in pursuit of integrating safeguards, security, and safety solutions.

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Crosscutting Themes, Challenges, and Opportunities

- **Institutional Inadequacy.** Nuclear policy institutions and governance arrangements are underperforming (Conference on Disarmament), vulnerable (NPT, Open Skies, Intermediate-Range Nuclear Forces Treaty), inadequate (nuclear materials governance), or nonexistent (emerging technologies and military materials). These inadequacies and gaps in the nuclear governance architecture constitute a serious risk given the increased spread and use of nuclear technology.

- **Changing Incentives.** Changed incentive structures are required to shift states' behavior or encourage commercial or scientific stakeholdership in improved nuclear policy.

- **The Dual-Use Dilemma and Emerging Technologies.** Emerging technologies present a crosscutting governance challenge that requires raising awareness about the technologies and their implications for strategic stability, disarmament, and nonproliferation.

- **Public Awareness and Training Journalists.** Enhancing public awareness and strengthening informed media engagement is essential to promoting positive policy change in general terms as well as with respect to specific risks or challenges. This requires investments to develop the expertise and build equity with key audiences.

Introduction

As part of its nuclear security policy programming efforts, the Stanley Foundation conducted an internal assessment, commissioned an external assessment, and then hosted a two-day policy lab to provide a comprehensive view of the risks, opportunities, and strategies in the current nuclear policy domain. The assessments provided a look at the impact and potential shortfalls of the foundation's past work in this arena, and the external assessment also gathered a broad range of perspectives regarding key challenges and opportunities for future foundation programming. In addition, the policy lab convened more than two dozen external experts and several internal stakeholders to identify, prioritize, and strategize on the strategic risks, desired policy shifts, and potential strategies to prompt change in the nuclear policy field today. This document provides a synthesis of the most critical issues identified by both the external assessment and the policy lab, as well as an overview of the key strategies or interventions offered by participants in both endeavors.

Policy Silos and Varied Priorities

The nuclear policy world remains fragmented due to siloed expertise within the community and prioritization of the risks or challenges in accordance with any given expert's professional focus. Therefore, consensus regarding highest priority risks or challenges and their implications remains elusive. The most prominent divisions among experts in the nuclear policy field include those focused on current risks to strategic stability, those centered on the deterrence-disarmament divide within the Nuclear Non-Proliferation Treaty (NPT) framework, and those focused on furthering efforts to address nuclear security governance as defined by the Nuclear Security Summit (NSS) process. An additional subgrouping of the first category largely includes those focused on the "hard cases" (Iran and North Korea) and the associated regional concerns.

Another feature of the current nuclear policy world is that the risks are monumental and of strategic consequence, while the opportunities and strategies for addressing them are disproportionately small and tactical. For example, experts agree that the NPT is at risk due to potential breakdown of the grand bargain between nuclear weapons states (NWS) and the rest of the world. The strategies for potential intervention include tactics such as convening unofficial forums (Track 2.0 or 1.5) to bridge the divide between the deterrence and disarmament communities. Another example would be the failure of deterrence between the United States and Russia; a potential intervention focuses on reestablishing US-Russia technical cooperation. In short, viable interventions are few and small scale in the face of high-consequence, strategic risks. Also, without a clear hierarchy of risks or challenges, it is hard to assess the expected impact of an intervention or accurately estimate the returns with respect to possible interventions. Lastly, none of these challenges lend themselves to quick fixes; they all require several years of concerted efforts to achieve the policy shift desired.

Although experts could not agree on how to prioritize the issues, there was a loose consensus on what issues were most urgent to address. Each of the risks or challenges identified and the desired policy change are discussed below. The most feasible and highest impact strategies or interventions to address these challenges are also highlighted in the subsequent section.

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Nuclear Risks and Needed Policy Shifts

The following discusses the strategic risks that were emphasized most frequently and the policy or behavioral change necessary to address the risk or challenge. Although each of these is described under a specific heading, some of these elements might be nested under a higher order category, and some elements of these challenges are highly interrelated. Specific examples of these interrelationships are indicated in the cursory description offered below and are indicative of likely force multipliers with respect to high-value intervention strategies.

Breakdown of the NPT Bargain

Within the expert community there is widespread concern about the health and continued viability of the NPT. This challenge touches on two interrelated trends: (1) mounting frustration with the lack of progress toward disarmament and (2) the resulting success of the Humanitarian Impact of Nuclear Weapons (HINW) movement. The most concrete institutional failure in multilateral governance in this regard points to the abysmal performance of the Conference on Disarmament over the past two decades. Experts cite increasing dissent within the NPT framework while simultaneously predicting that the HINW will have little to no real impact on the behavior of NWS. Whereas the NPT rests on pragmatic acceptance that possession of nuclear weapons is a time-limited but necessary evil, the HINW endeavor simply does not engage with the security concerns of NWS and allies. The most common concerns can be depicted as follows: (1) the HINW will not succeed at its central goal because of its alienation of NWS and their national security concerns, (2) alienation of NWS will lead to their retrenchment, (3) by end running the NPT, and failing, HINW is also undermining the other pillars of the NPT, and (4) therefore, HINW is creating a lot of collateral damage with no prospect for success at its stated purpose. As the foremost and specific example of these concerns, HINW's negotiation of a ban would serve to undermine the NPT but likely produce no change in the NWS' postures or doctrines.

There are two elements in creating the conditions necessary to mitigate this risk. First would be to rejuvenate arms control with respect to addressing the US-Russia stalemate as described below. Second, more importantly, would be creating the conditions and reestablishing the mechanisms to advance multilateral arms reductions. Addressing the current challenge posed by the HINW involves including security concerns in the humanitarian discourse while simultaneously protecting the NPT. This requires finding the political language for discussing humanitarian concerns within the context of deterrence and strategic stability. This would include reconciling a nuclear ban treaty with existing regimes and international laws, which entails P5 engagement, and solidarity of like-minded states in their approach to the humanitarian initiative.

US-Russia Stalemate

Whereas strategic arms control and robust technical cooperation shaped the first two decades of post-Cold War US-Russia relations, such efforts have come to a complete standstill. This reality has monumental implications for future nuclear arms reductions under the NPT as addressed above. Of equal if not more significance, the complete

breakdown in formal mechanisms to address these challenges comes at a time when traditional arms control is out of step in addressing many of current elements that impact crisis stability. Strategic stability is being shaken as countries modernize nuclear arsenals and as emerging technologies fundamentally alter the conduct of war (means of aggression). This increases the risks of miscalculation and potential nuclear use.

The US-Russia political-strategic relationship continues to deteriorate. While arms control can help manage the fallout, it is not sufficient to manage new political challenges to strategic stability. Given the lack of US-Russia cooperation, arms control efforts also are not responsive enough to manage emerging risks to crisis stability and arms race stability. Unless or until the United States and Russia fall back into a more cooperative orbit, the prospect of arms control being a primary mechanism for managing strategic risk is dim.

An urgent need in this context is to arrest and reverse the erosion in US-Russia relations and conduct. This would include not only reestablishing conduits for transparency to reduce the likelihood of miscalculation but also broadening the aperture regarding the elements that make up strategic and crisis stability, including the implications of emerging technologies as further discussed below. The requisite policy shift requires a commitment to bilateral risk management related to what constitutes "use of force" or "an act of aggression" and ensuring nuclear modernization plans enhance rather than erode strategic stability.

Collapse of the Joint Comprehensive Plan of Action

Experts generally agree that the most vulnerable fail point in the nonproliferation regime is the Joint Comprehensive Plan of Action (JCPOA). A breakdown in successful implementation of this agreement is viewed as having catastrophic consequences for the NPT. There are multiple policy or behavioral shifts requisite to ensure successful implementation for the duration of the agreement, not to mention laying a foundation for follow-on after the agreement's expiration. For the JCPOA's continued and enduring implementation, there needs to be steadfast and timely delivery on Iran's commitments under the agreement. In sum, the agreement must simultaneously achieve the behavioral shift to address the proliferation concerns of the P5+1 and provide the desired sanctions relief and resulting economic benefits to the Iranian side. There is also a need to prevent extraneous US-Iran disputes from getting in the way of the agreement's successful implementation.

A critical change in the existing dynamic would be to move beyond one-year implementation milestones and toward a cooperative, rather than adversarial, approach to implementation. This necessitates finding incentives for adherence to the terms of the agreement over a 10-to-15-year window. Long-term incentives and a cooperative approach would help mitigate the potential impacts of national leadership changes, the politicization of technical issues, or activities in Iran's missile program that could upend the deal. Continued successful implementation, but especially follow-on to the JCPOA, ultimately requires changes in terms of Iran's behavior and actions to advance more-positive relationships with its neighbors. As part of a cooperative implementation approach and essential to reassuring its neighbors, there needs to be a shift in the incentive structures around Iran's nuclear program that protects confidentiality while promoting transparency.

Strategic Instability in South Asia

The risk of nuclear use remains highest in South Asia. The pace of the India-Pakistan arms race exacerbates the unbridled and unpredictable nature of the ongoing conflict. India and Pakistan are locked into an arms race, with both states competitively modernizing their arsenals in pursuit of "full spectrum deterrence." Notable is the unidirectional aspect of the arms race, with India pursuing weapons parity with China, and Pakistan aiming to catch up with India. Consequently, regional dynamics are also tied to much larger strategic drivers: the ongoing role of the United States in regional conflicts, the continued search for security, and modernization in India and China.

As part of Pakistan's full spectrum deterrence, there are concerns that its tactical nuclear modernization program will lower the threshold for a nuclear exchange. These weapons are being more closely woven into war plans, including mating and decentralized control, as well as deployment in a chaotic environment, which presents concerns over loss of control and/or accidental use. Experts, including former commanders with nuclear programs experience, concede that political and military command and control over nuclear weapons have not kept pace with military developments, and these structures are frequently opaque, unreliable, and seemingly unstable. These fears are compounded by Pakistan's acquiescence to or complicit use of proxies in the struggle against India and further magnified by a lack of political cohesion, large ungoverned spaces, and the challenge presented by well-armed nonstate actors.

The policy and behavioral shifts needed in and related to South Asia are manifold. At a minimum, increased transparency through confidence-building measures would help mitigate the risk of miscalculation; reciprocal measures for escalation control could help dampen the risk of use. Finding incentives to restrict numbers and types of weapons, as well as delivery systems, would also be useful with respect to minimizing the range of issues to address under the rubric of transparency and escalation control. Ultimately, however, the context for these activities can only be resolved through regional conflict resolution, one that includes China.

North Korea's Nuclear Ambitions

North Korea continues to present a persistent, seemingly intractable, and mounting strategic challenge for US foreign policy and international security. Kim Jong Un's accession to his position as supreme leader in 2011 was immediately followed by purges and consolidation of power. While leadership decision making in the so-called hermit kingdom has always been opaque, North Korea's behavior under Kim has become increasingly unpredictable and aggressive. North Korea's current two-track policy focuses on economic development and nuclear weapons development. With repeated nuclear tests and recent advances in its missile program, the strategic calculus appears to be shifting, with direct and immediate consequences for the region and the United States. Moreover, UN sanctions and pressure from China appear increasingly impotent in influencing North Korea's current trajectory.

In this context, a related concern is the perceived weakening of the US commitment to extended deterrence in the region. Some experts emphasize that this perception is leading to increased, and somewhat naïve, considerations of nuclear weapons acquisition by US allies in the region. If North Korea stays the course in nuclear weapons

development and US allies perceive US security guarantees to be weak, proliferation risks in the region cannot be discounted.

Pressure is mounting to address the challenge presented by North Korea, calling into question the current "strategic patience" policy of the Obama administration. A renewed commitment to finding peaceful solutions is needed. Pursuit of a nuclear-weapons-free peninsula and normalization of relations remain the ultimate US objectives, either in a still-divided or unified Korea. Unfortunately, unification is undesirable to all of North Korea's neighbors, and normalization would likely only follow from some form of unification resulting from complete regime collapse. As with South Asia, North Korea presents a multidimensional challenge that will require a regional solution.

An Uncertain Future for Nuclear Security Governance

Although notable advances have been achieved since the first Nuclear Security Summit in 2010, the need for a comprehensive and coherent nuclear security governance architecture remains. With 2016 marking the end of the Nuclear Security Summit process, experts agree that there is no way to sustain the same momentum realized over the past six years. With respect to post-summit policy prospects, three immediate and critical issues stand out: (1) fatigue and underlying cynicism with the agenda, (2) the fissure between states that were part of the NSS process and those left out, and (3) the absence of military materials from the NSS agenda. The nuclear security regime currently consists of a patchwork of treaties, conventions, UN Security Council resolutions, and coalitions of the willing focused exclusively on civilian materials. Political buy-in and actual implementation connote multiple degrees of commitment and the corresponding resources devoted to effective implementation.

The critical behavioral shift required is overcoming complacency and/or cynicism regarding this agenda. The most obvious and challenging policy gap to address entails those materials categorized for military as opposed to civilian use. Given that these materials make up about 85 percent of global fissile material stocks, their absence from the agenda foments the aforementioned cynicism. Addressing this gap will require creating an incentive structure equal to the challenge while adopting confidence-building measures for greater transparency and mutual trust. The formidable challenge of addressing the military-materials gap is coupled with the immediate need to consolidate, coordinate, and further nuclear security governance objectives outlined in the summit process. This challenge can only be met by the painstaking actions required to turn policy commitments into effective implementation. A global governance system that includes all fissile materials will require detailed, long-term efforts on well-defined policy targets. This will require ongoing high-level policy discussion to shift attitudes within governments, as well as to generate incentives to ensure implementation by operators and industry.

Limited Constraints on Emerging Technologies

Emerging technologies represent a strategic risk in three ways: (1) there are no constraints or rules of the road with respect to their application, (2) their introduction into the conduct of war or acts of aggression can increase the risk of nuclear use, and (3) they can have a role in advancing horizontal and vertical proliferation.

Several emerging technologies, such as artificial intelligence and unmanned aerial vehicles, are unconstrained in their application. There is no treaty framework to guide their use with or without introducing nuclear risks into the equation. These technologies, because of their potential uses and implications, introduce the need for individuals within the science and technology community to understand and apply ethical responsibility in their research activities. The behavioral shift needed would encompass legal and technical discussions focused on the ethical exploration and application of these technologies; the resulting policy shift would promote the development of international rules of the road grounded in international law.

There's an interaction between new technologies and states with nuclear weapons that can disrupt a stable relationship or further destabilize a precarious truce. The introduction of additive manufacturing in nuclear modernization efforts can expedite and ease these efforts, potentially disrupting an existing balance or accelerating an arms race. Simultaneously, the use of unmanned aerial vehicles or artificial intelligence has unknown implications in the nuclear dynamic. This is true in the context of US-Russia, US-China, and India-Pakistan deterrence postures. There's a demand to have discussions in the P5 and beyond regarding the implications of these technologies and policies or frameworks to mitigate their negative implications in any calculations regarding nuclear modernization and use.

Other technologies, such as additive manufacturing, laser enrichment, and biotechnology, introduce newly available capabilities with horizontal and vertical proliferation risks. In some cases, the policy gaps may overlap with those in the first category above. In other cases, the gaps do not have direct relevance to proliferation risks but still represent a mounting security concern and necessitate the development of guidelines or frameworks to inform ethical behavior in the research and application of these technologies.

Opportunities and Strategies to Address These Risks

As previously mentioned, the nuclear policy challenges appear increasingly monumental, while the potential strategies to address them seem incremental and small scale. The sections below provide a brief overview of the various strategies offered by experts to address many of the risks or challenges discussed.

Bridge the Deterrence-Disarmament Divide

Several experts underscored the need for convening discussions (Track 1.5 or 2 dialogues) across the disarmament-deterrence divide. A core objective of this effort would be to identify what concrete steps NWS are willing to take under their Article VI obligations to head off a potentially disastrous NPT Review Conference (RevCon) in 2020. A related and highly practical step would be to pursue procedural and process tweaks in the lead-up to the next RevCon, such as a commitment of resources devoted to greater preparation in advance of the formal talks, including preliminary high-level engagement with RevCon participants (or their technical experts) to address critical areas of disagreement or

potential points of convergence, and potentially prepare and introduce the Nuclear Security Summit gift-basket approach at the RevCon by making unilateral, bilateral, or multilateral commitments on the part of any specific subgroup of states that focus on potential flashpoints in the agenda. Additionally, a longer-term strategy would look at initiating a dialogue foremost between the NWS and the humanitarian initiative; the goal would be to protect the NPT while working toward the HINW's goals.

A parallel strategic effort could elevate and advance ideas at the intersection of international humanitarian law and nuclear weapons with an eye toward influencing professional and military opinion on these matters. Further, commissioning an examination of the status of the nuclear nonuse norm and a corresponding effort to raise the US public's awareness of the humanitarian consequences of nuclear use could serve to provide widespread public support for the disarmament agenda.

Disarmament efforts that could contribute to the longevity of the NPT include:

- The community could promote a weapons-of-mass-destruction-free zone in the Middle East. Even incremental steps on this agenda would reinforce confidence and buy-in for the NPT. Any progress toward such a zone in the Middle East also would have knock-on effects in other areas, particularly for follow-on activities related to the JCPOA. This is an incredibly difficult challenge and would require a multipronged strategy, including immediate, high-level political attention and sustained long-term commitment.

- In light of the Conference on Disarmament's moribund status and failed performance over the past two decades, the disarmament agenda currently confronts an institutional vacuum. There is an urgent need to establish a robust and functioning mechanism for multilateral negotiations and steps toward disarmament. This will require sweeping institutional reform of the existing disarmament machinery. Several experts believe the best path forward would be to get rid of and replace the Conference on Disarmament. This is analogous to earlier examples of scrapping the UN Disarmament Commission and creating the IAEA, and the UN Human Rights Commission supplanting the Human Rights Council.

- US ratification of the Comprehensive Test Ban Treaty, with the United States playing a strong role in its entry into force. This is perceived as a critical element in bolstering and sustaining the NPT framework. The nongovernmental organization (NGO) community's level of effort, resources, and coordination would have to equal or exceed that given to the JCPOA's passage by Congress.

- Addressing the complete stalemate in US-Russia relations is a critical first step to promoting multilateral arms reductions as discussed in the next section.

Address the US-Russia Stalemate and Modernization Concerns

The fallback strategy for addressing the US-Russia challenge begins with a Track 1.5 strategic or pre-arms control dialogue targeting the extension of New START. Ironically, the highest hurdle to overcome in the stalemate is the most urgent and essential to

moving beyond New START extension. This hurdle involves the very issues that are destabilizing the strategic environment, including modernization and force postures, missile defense, and the introduction of emerging technologies.

Lowering regional tensions is considered costly but critically important, especially as it pertains to resolving the Ukraine crisis. Strategies suggested include building support for the Open Skies Treaty, the Organization for Security and Cooperation in Europe, and the NATO-Russia Council. A potential avenue for building greater support would be an NGO-facilitated forum for legislators.

As a hinge factor with broader implications than the US-Russia relationship, advancing trilateral arms control among the United States, Russia, and China would serve to build inroads in addressing other strategic risks. Although including China might be exceedingly difficult, the potential for addressing regional nuclear issues in Northeast Asia and South Asia is a big incentive for attempting this approach. Additional challenges could also be addressed within this dialogue, such as Syria.

Another hinge element that surfaced was the linkage between ballistic missile defense and proliferation. One strategy might be to work with the P5+1 and Iran toward limits on Iranian missile ranges. First, this would address a gap in the JCPOA construct that constitutes a big political risk to the plan, one that echoes the North Korea missile program's deleterious impact on the 1994 Agreed Framework. Limits to the range of Iranian missiles would shift current incentives in the US pursuit of strategic missile defenses that aggravate relations with Russia. Additionally, US restraints on missile defenses would provide a positive incentive for Russia's adherence to the constraints embedded the Intermediate-Range Nuclear Forces Treaty. Given Russia's own missile-defense developments, there is a need for greater transparency in this arena; missile defense also provides a concrete linkage to concerns about emerging technologies and strategic stability.

Implement the JCPOA and Next Steps

Ensuring successful implementation of the JCPOA requires bolstering sufficient US congressional and public understanding of and support for the deal. Without it, this agreement is likely to fall apart. Experts perceive interventions focused in this arena as the most practical strategy because it is confined to the US domestic dynamic and, therefore, easier to control. Tactical elements of this strategy might include promoting congressional buy-in for the agreement through routine congressional delegations going to Vienna to meet with the IAEA experts, or establishing a congressional caucus on Iran to engage the IAEA directly; establishing an expert rapid-response team to put Iran and JCPOA events in context with factual, concise, and accessible information; training for journalists reporting on these issues and for NGOs in writing accurately and clearly on the subject; and preparation of a media strategy concurrent with the release of IAEA reports.

Another strategy with positive spillover effects beyond the deal would be US-Iranian technical cooperation on energy security being introduced into the overall framework of the JCPOA. Of course, this approach would require direct US-Iranian engagement as well as congressional support.

Address Instability in South Asia

Strategic instability in South Asia continues to be a complex and vexing challenge in the nuclear policy arena. The routine dynamic has been that India takes an action with respect to its nuclear forces and Pakistan then follows suit. Currently, India is developing submarines, multiple independent reentry vehicles, and ballistic missile defenses. It is not likely Pakistan will catch up this time around. Therefore, it seems that a strategy focused on curtailing India's activities would be the most effective.

Whereas Pakistan's nuclear program is well known and understood, much less is known about India's. Experts believe that a strategy for cooperation must start at square one, and its focus should be weighted toward India because of its relative absence or distance from international forums. A doable first step would be a strategy that targets young scholars and professionals for engagement and promotes, in particular, a cadre of Indian nuclear experts. This would serve foremost to establish a rapport with India, and its purpose would go beyond military objectives. One component of the strategy might include lab-to-lab-type programs that look at broader issues of food, water, and climate security.

Another practical element might be international or US-coordinated assistance on renewable energy planning and development as a mutually beneficial conduit for relationship building, while working to address the energy needs of the actors. This conduit would be intended to enhance transparency and build trust between participants. In the long term, these relationships and mechanisms could be expanded to address energy planning and development more broadly, including nuclear. All of these examples (food, water, climate, energy) leverage scientific cooperation to promote transparency and foster trust. Eventually, these scientific networks with common interests, so-called epistemic communities, can become critical domestic factions in a state's own policymaking process and provide a foundation for cooperation in more-sensitive areas.

The biggest return on investment was thought to be a strategy that would promote prioritization of South Asia and its nuclear issues as a critical part of the US Asia policy. This policy would have to encompass China's role in this region. Given that India tends to reject a US role, the United States and China would need to work together to influence the trajectory of India's program and, thereby, serve to dampen Pakistan's perceived needs. As an extension of this idea, Russia also might be included to provide inroads with India and further balance the dynamic. Working in concert, the United States, China, and Russia could create incentives for India (and Pakistan) to establish quantitative and qualitative limitations, including modernization pursuits, on their nuclear arsenals and engender greater stability in the region.

Establish a Global Nuclear Security Regime

The potential for NGOs to have an impact on nuclear security governance remains, albeit in a substantially less-favorable environment. Whereas the summit process engendered focus and coaxed political commitments from participating countries, the 2016 NSS Action Plans transitioned the agenda to five separate multilateral mechanisms: 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. With the end of the summit process, the biggest risk to the nuclear security policy agenda is losing the coordination and coherence of collective action moving forward. One idea that surfaced with respect to driving additional high-level political commitments was to transfer the NSS agenda to the G-20 rather than the IAEA. In addition, an opportunity exists for the nongovernmental expert community to convene relevant officials from the five entities and facilitate a process focused on clarification of roles, interfaces, and objectives among them.

The level of fatigue combined with complacency make for a difficult set of hurdles to surmount in continuing to realize significant progress in this area. According to one expert, the best means of combatting complacency is to provide access to credible threat information, but secrecy almost always trumps sharing with respect to threat information. Given the barriers to governments officially sharing threat information, forums could be established for exchanging best practices. The first provides the motivation; the second makes it a constructive interaction. Such forums might be most effective if tied to the aforementioned process focused on clarification of roles and objectives.

Also, supporting and furthering the commitment to IAEA Information Circular 869 (INFCIRC/869) represents a huge opportunity that has yet to be fully explored.[1] Strengthening the role and implementation of INFCIRC/869 will require outreach to more countries and technical assistance beyond what the IAEA alone can provide; bilateral cooperation was perceived as the most feasible approach for its actual implementation. Given that INFCIRC/869 calls for adherence to the IAEA recommendations, the IAEA also needs to promote strong nuclear security culture and tailoring exercises to different threats in specific states. Such routine exercises could be further enhanced by a voluntary composite adversary force that states would allow to perform short-notice inspections at any time.

Addressing the gap regarding military materials is essential and will require US-Russia cooperation. On the minimization front, there is a growing need to address plutonium production and securing those stocks through direct disposal. Whereas some experts suggested that the plutonium-disposal issue was a losing battle given Japan and China's position, others took a different view. Instead of inhibiting processing, the experts involved would pursue diligent use of plutonium and reprocessing of spent fuel. This should proceed under IAEA safeguards, be handled in a multilateral format, and must include industry.

One of the most uniform perspectives among the experts involved was that industry is an essential player in advancing the nuclear security agenda. Addressing the false security provided by the liability regime and exploring potential financial incentives to catalyze greater industry involvement is an opportunity rife for exploration. As a potential extension of the civil society-industry collaboration, it is thought that multistakeholder meetings in pursuit of integrating safeguards, security, and safety (3Ss) solutions could elicit industry's buy-in and proffer high-impact, readily feasible solutions. Building better connections among the 3Ss, having high-level cooperation in the IAEA, and transparency and exchange of best practices would also be practical. Experts believe that the biggest bang for the buck would be in finding and exploiting market incentives, such as lower insurance premiums, for operators that demonstrate solid security performance.

Crosscutting Themes, Challenges, and Opportunities

Institutional Inadequacy

Across the nuclear policy domain, global trends against institutions and authority are manifesting themselves in ways that put nuclear governance at risk. The lion's share of institutions or governance arrangements to address nuclear policy in its broadest sense are underperforming (Conference on Disarmament), vulnerable (NPT, Open Skies, Intermediate-Range Nuclear Forces Treaty), inadequate (nuclear materials governance, bilateral arms control), or nonexistent (emerging technologies and military materials). These institutions and governance arrangements range from formalized treaties, such as the NPT, underpinned by the implementation and verification activities of the IAEA, to informal or ad hoc arrangements, such as the six-party and the P5+1 talks. These inadequacies and gaps in the current nuclear governance institutions constitute a serious risk given the increased spread and use of nuclear technology.

The overperformance of some nuclear policy related institutions either threatens other governance arrangements or, their current success is not specific to the nuclear policy objectives for which they were established. The HINW movement's success is an outgrowth of the NPT's perceived failure and viewed as potentially perilous to the NPT's future. On the other hand, the perceived overperformance of the Comprehensive Test Ban Treaty Organization largely pertains to the civilian applications of its seismic-activity-monitoring capabilities as opposed to its verification mandate.

Changing Incentives

Another crosscutting theme focused on how to change the incentive structures that would shift states' behavior or catalyze commercial or scientific participation. Examples included positive incentives regarding membership in the NPT by the states that remain outside the treaty framework, shifting incentives to safeguard the behavior of Iran and other actors in the region, incentives to change India's current modernization objective, and incentive structures to garner greater attention to security in the nuclear sector and induce ethical practices in the scientific communities involved in development of dual-use technologies.

The Dual-Use Dilemma and Emerging Technologies

Emerging technologies present a crosscutting and unprecedented governance challenge. Industry is now at the forefront of developing technologies that used to be in the sole province of governments and is looking for methods to address the strategic implications of these technologies. In particular, it is interested in lessons from the governance, ethics, and security of dual-use technologies, for which experiences from the nuclear and weapons-of-mass-destruction policy communities could provide insight. Additionally, international organizations are trying to grapple with how these

new technologies are affecting the spaces they govern. At the same time, the nuclear policy community is interested in the topic of emerging technologies but frequently lacks the technical expertise to understand all the implications or, in turn, devise solutions to address the risks they entail.

There is a need to establish rules of the road in the pursuit and the application of these technologies. Additionally, there is an urgent need to better understand and address the role of these technologies on strategic stability and the implications in horizontal and vertical proliferation risks. This multidimensional challenge requires raising awareness about the technologies and their implications for nuclear weapons safety, security, and control. The NGO community can be helpful in bridging this gap by establishing forums for conversations between the private sector and government officials. Furthermore, nongovernmental actors can provide the context, commission the research, and support dissemination of solutions in this area.

One of the most uniform perspectives among the experts involved was that industry is an essential player in promoting progress, specifically on the nuclear security agenda. There is an essential role to be performed in convening multistakeholder venues to explore and promote commercially viable solutions. For example, an opportunity exists to convene multistakeholder dialogues to address the nuclear liability regime and explore viable financial incentives to prompt greater security in the industry's daily operations. Also, better integration of 3S solutions for nuclear facilities may present another strategic opportunity.

Public Awareness and Training Journalists

Enhancing public awareness and strengthening informed media engagement surfaced as an essential feature in promoting positive policy change in general terms as well as with respect to specific risks or challenges (e.g., disarmament/deterrence, the JCPOA, nuclear security). Although this requires investments to develop the expertise and build equity, experts believe there is a high, long-term payoff to these efforts.

The lack of in-depth reporting on these issues is acute; fostering detailed and accurate in-depth coverage likely requires intensive training through one-on-ones or tutorials with a small number of journalists. The approach to training must overcome two critical challenges in this area. First, the ability for journalists or others to provide the public with interpretation of policy documents released in bulk represents a continuous challenge. This problem pertains not only to leaks but also other government distribution online. Accurate media interpretation of these types of sources represents a gap. The second challenge is the trend toward 180-character "news" via a Twitter feed. This format represents the antithesis of in-depth reporting and essentially leads to a dumbing down of the international discourse on these issues. Policy-oriented research centers and their media counterparts must try to address the interpretation gap and counter the corrosive impact of social media with credible, accurate information that is digestible by the mainstream.

Key audiences include not only high-level officials within governments but also the intermediate-level officials and operators, such as the NSS sherpas. This intermediate-level audience has some basic knowledge and general background in the area, but it frequently lacks an understanding of the policy context. Reaching this audience would fill a gap with respect to ideas and influence. An example of this audience is the NSS

sherpas; one expert commented that probably only 10 percent of the sherpas would appear in the contact group.[2] In addition, the nuclear policy field confronts a large and pervasive generational and gender gap. Younger generations should be considered a target audience. Climate change, for example, is capturing their imagination and might be leveraged as an entry point for garnering interest.

Creating Multistakeholder Approaches to Address the Challenges

Much like kids in a soccer game, NGOs tend to gravitate to the space closest to the ball. This behavior, while entirely understandable and sometimes successful, is problematic in light of the wide range of high-risk and formidable challenges coupled with the lack of opportunity for significant progress in the current nuclear policy environment. This is especially true given that many of the most practical interventions are disproportionately tactical in nature. Although it has always been the case that better collaboration within the NGO community could yield greater results, currently, the need for such coordination and coalition building would seem acute.

Due to its relative size and level of resources, the Stanley Foundation tries to identify strategic opportunities where it can deploy its programming efforts to achieve disproportionate, positive policy progress. Through its commissioned external assessment and, most especially, the Policy Lab on Nuclear Security, the foundation was searching to identify its best opportunities to achieve significant impact. The following is a brief overview of strategic opportunities in the nuclear policy field.

The traditional US-Russia arms control agenda is a crowded space with a troubling outlook for success. Although it represents an urgent priority, it is also saturated. Moreover, according to experts, new ideas in this arena have a tendency to fizzle, and underlying conditions seem irresolvable. At the same time, as depicted by one expert, the arms control space is occupied by "two clusters of eight-year-olds who will not attend the same meeting." For example, as a centrist, nonpartisan participant, one might represent the most left-leaning person at an event convened by one group and be perceived as the hard right by another. This illustrates the clustering problem in the nuclear policy domain and the gaps between organizations and individuals focused on deterrence, arms control, and humanitarian consequences. Addressing the gap between the HINW and the P5 is compelling, but it will require a very credible actor to convene all parties for productive dialogues. Whereas the nuclear modernization field is saturated and noisy, there are few experts looking at the long-term infrastructure issues related to sustaining and modernizing these arsenals.

A surge of organizations got involved when the JCPOA became a highly salient political topic. Some of these have remained invested, while others have dispersed. There are gaps in current activities with respect to JCPOA implementation; in addition, much of the effort is highly polarized. With respect to the near-term preservation of the JCPOA, the field is moderately crowded; on the issue of reducing risk over the longer term, it is much less populated. Addressing the gaps in implementation and follow-on to the JCPOA could be an important opportunity for the NGO community to pursue through its work.

The strengthening of global governance around safety, security, and nonproliferation is likely to receive diminishing attention. Governments, formal arrangements, and informal commitments are still the big poles in this tent; however, the private sector and civil society have potential to shoulder relatively more burden in furthering this agenda. There is a need for centralization of efforts; it would be very useful and important to convene the diverse stakeholders: governments, industry, and nongovernmental experts. In addition, outreach to those states not involved in the NSS process will be critical. The Carnegie Corporation and John D. and Catharine T. MacArthur Foundation's joint statement on a "Civil Society Gift Basket" at the March 2016 summit and their more recent "Request for Proposals: Heading Off Nuclear Catastrophe" appear to be trying to fill this void.[3] It is also worth noting that the center of gravity on the nuclear security issue seems to have shifted from Washington, DC, to Vienna, home of the IAEA.

There's little attention paid to the IAEA as a holistic institution. Moreover, the IAEA does not have any mechanisms for working with civil society or industry. There are stove-piped actors (government, civil society, industry) and interests in all facets of the IAEA's growing mandate on safeguards, security, and safety. Given that the IAEA is the paramount global governance body on nuclear issues, a dialogue between and among the stovepipes would be beneficial. There are growing political demands on the agency's agenda, but there is not sufficient support to help in sorting through and prioritizing them. All of these challenges to the IAEA represent opportunities for the nongovernmental sector.

Tackling any of the aforementioned nuclear policy challenges in a comprehensive fashion will require convening a range of actors and establishing mechanisms at different levels for bridging or addressing gaps and providing a sustained, long-term focus. For this reason, the nongovernmental community should collaborate closely in the creation of multistakeholder approaches and maximizing the dissemination of credible, accessible knowledge in its efforts to address these challenges.

Conclusions

Challenges in the nuclear policy arena are immense, diffuse, and rapidly changing. Due to the wide-ranging nature of and siloed expertise in nuclear security policy, there is no consensus regarding the rank order among competing priorities. There is, however, a loose consensus regarding the challenges that represent the greatest risks. These challenges include NPT failure, loss of momentum and formidable gaps in achieving nuclear security governance, and intentional or accidental use given decreased crisis stability and increased proliferation risks. It is indisputable that nuclear policy is riddled with grand challenges, while the opportunities for intervention remain tactical, incremental, and short in supply. Coherent and impactful strategies to address any of these challenges will require focused and sustained attention on the part of various stakeholders. Greater attention to industry's role in devising and implementing solutions would seem essential. Moreover, the production of credible, in-depth, and accessible information on nuclear policy represents a critical ingredient in adequately addressing several of these challenges. Lastly, closer collaboration among foundations and within the NGO community more generally will be essential to realizing impactful, sustainable strategies.

Annex–Contributors

Assessment

In July 2016, the Stanley Foundation commissioned an assessment of major risks, opportunities, and strategies in the current nuclear policy domain. The assessment, conducted by Elizabeth Turpen, was based on interviews with a diverse pool of foundation collaborators and other senior leaders in the field, with representation across academia, advocacy, government, and philanthropy. Interviews were conducted via telephone or Skype July 18–August 12, 2016, with the following individuals:

Emma Belcher, Director, Nuclear Challenges Program, MacArthur Foundation

Susan Burk, Former US Ambassador

Seth Carus, Distinguished Research Fellow, National Defense University

Roger Howsley, Executive Director, World Institute for Nuclear Security

Gretchen Hund, Director, Center for Global Security, Pacific Northwest National Laboratory

Anton Klopkhov, Founding Director, Center for Energy and Security Studies

Andreas Persbo, Executive Director, Verification Research Training and Information Centre

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Will Tobey, Senior Fellow, Belfer Center for Science and International Affairs

Jon Wolfsthal, Senior Director, National Security Council

Participants in the Policy Lab on Nuclear Security

On September 13–14, 2016, the Stanley Foundation convened its Policy Lab on Nuclear Security in St. Michael's, MD, which brought together a diverse pool of internal stakeholders and external thought leaders to refine ideas put forward in the internal and external assessments and to discuss the current nuclear security policy landscape.

External Thought Leaders

Kennette Benedict, Lecturer and Senior Fellow, Harris School of Public Policy, University of Chicago

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Paul Carroll, Program Director, Ploughshares Fund

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Affiliations are listed for identification purposes only. Participants attended as individuals rather than as representatives of their governments or organizations.

Endnotes

1 IAEA, "Communication Received From the Netherlands Concerning the Strengthening of Nuclear Security Implementation," October 22, 2014, *https://www.iaea.org/sites/default/files/publications/documents/infcircs/infcirc869.pdf.*

2 The summit sherpas were the government officials from each state who managed the day-to-day policy and technical activities related to the summits. At the 2016 summit, the contact group, which is intended to become a governance body comprising summit sherpas, was established to carry forward the policy and implementation commitments achieved through the summit process.

3 Information on the Carnegie-MacArthur "Request for Proposals" is at *https://www.carnegie.org/news/articles/request-proposals-heading-nuclear-catastrophe/?utm_source=Sail-thru&utm_medium=email&utm_campaign=New+Campaign&utm_term=%2AMorning+Brief.*

The Stanley Foundation

The Stanley Foundation advances multilateral action to create fair, just, and lasting solutions to critical issues of peace and security. Our work is built on the belief that greater international cooperation will enhance global governance and spur global citizenship. The foundation frequently collaborates with a wide range of organizations using different forums, formats, and venues to engage policy communities. We do not make grants.

Our programming addresses profound threats to human survival where improved multilateral governance and cooperation are fundamental to transforming real-world policy. Current efforts focus on policy improvement to prevent genocide and mass atrocities, avoid the use of nuclear weapons in an era of rapid technological development, and drive collective and long-term action on climate change. The foundation also works to promote global education in our hometown of Muscatine, Iowa, and nearby.

A private operating foundation established in 1956, the Stanley Foundation maintains a long-term, independent, and nonpartisan perspective. Our publications, multimedia resources, and a wealth of other information about programming are available at *www.stanleyfoundation.org.*

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