

SYMPOSIUM ON NEW CHALLENGES IN WEAPONS INSPECTION

THE FADING PIPELINE: PREPARING THE NEXT GENERATION OF WEAPONS INSPECTORS

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Over the past four decades, the most prolific time in recent memory for the negotiation and implementation of arms control treaties, a cadre of expertise was developed that enabled weapons inspections. Yet the pipeline for educating and developing rising generations to perform such inspections is now running dry, particularly outside of the United States and Europe. In this essay, I argue that we must invigorate efforts to develop and maintain that pipeline. I identify historical sources of expertise in the field of arms control and describe the obstacles that we face in maintaining them. I conclude by offering potential solutions to this problem, arguing that it is time to revitalize platforms for supporting cross-domain, cross-regional, and multi-generational nonproliferation experience and learning opportunities.

In making this argument, I draw upon my professional experience in the field. Early in my career, I served as an Arms Control and Disarmament Agency representative to the Conference on Disarmament (CD) during negotiations on the Chemical Weapons Convention (CWC), with weapons inspection teams related to Soviet biological weapons and Libyan dismantlement of weapons of mass destruction (WMD), and as part of the interagency policy group overseeing U.S. actions related to the UN Special Commission on Iraq (UNSCOM). I was also an UNSCOM inspector tasked with learning how this UN Security Council-mandated inspection regime worked as it uncovered WMD and kept senior political leadership informed.¹ In these various settings, I witnessed the important role that diverse experiences and professional backgrounds—from social science to military, physical science, and information technology—can play in efforts to prevent and eliminate WMD programs.

The Pipeline of the Past

Historically, much of the expertise needed to serve on an international weapons inspection team was acquired from either of two sources. The first was personal involvement in negotiations over the Nuclear Nonproliferation Treaty, the CWC, or the Biological Weapons Convention at the CD during the latter half of the twentieth century. The seeds of what became arms control treaties were most often crafted as resolutions in the UN General Assembly First Committee on Disarmament. One or more countries proposed and others co-sponsored a resolution calling for the Geneva-based CD—the body in the disarmament machinery designed to negotiate treaty

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¹ See [S.C. Res. 687](#) (Apr. 8, 1991).

text—to begin deliberations. Capital-based delegations then gathered at UN Headquarters in New York to edit and revise the text before submitting it to the UN General Assembly for a vote. After approval, experts from numerous countries gathered in CD working groups to advance the various elements of the treaty, such as articles on verification measures, mutual assistance, or legal aspects of withdrawal. Scientific experts were joined by legal experts, as well as by policy experts who understood how strategic multilateral and bilateral relationships would be supported or adversely affected by the various proposals. Each session lasted about six weeks, with a break for the teams to return to their capitals to recalibrate positions in relation to offers and demands from counterparts. Parliamentary members were often engaged on both ends of negotiations, ensuring a knowledgeable legislative process once the treaties were completed.

In this setting, junior diplomats and experts learned on the job the intricacies of the national security calculations of nearly fifty countries and the technical details of weapons decisions, procurement, development, security, and use. The CD's unique, interdisciplinary atmosphere, and the intensity and shared purpose of negotiating together to eliminate such horrific weapons, fostered a community in which members learned from and relied on each other for decades to come. It also fostered successes. After the negotiation of the CWC in the early 1990s, a good number of delegation members transferred to The Hague to help set up the Organisation for the Prohibition of Chemical Weapons (OPCW), which has been at the heart of U.S., Russian, Iraqi, Libyan, and Syrian chemical weapons destruction efforts. Likewise, the West assisted with destruction of the Soviet chemical weapons program and supported the conversion of Soviet WMD scientists and facilities to peaceful purposes, while “trilateral” inspections raised concerns over a huge offensive Soviet bioweapons program.

The second historical source of expertise was the international community's experience with Iraq. In the 1990s, international chemical and biological weapons and missile teams worked in coordination with the International Atomic Energy Agency (IAEA) to inspect Saddam Hussein's programs. UNSCOM's mandate was to carry out immediate on-site inspections and remove or render harmless all chemical and biological weapons, related components, research and development, support and manufacturing facilities, and missiles with a range greater than 150 kilometers. As the Iraqi inspections were the first of their kind, mandated by the UN Security Council and non-negotiable, there was no template, international organization, or formal training program in place to prepare experts and get them on-site.

Inspectors overcame challenges posed by the novelty of their task by innovating. The UNSCOM inspections were the first to form multidisciplinary teams. During interagency policy meetings, and in the Bahrain staging process, the nuclear, chemical, biological, and missile experts worked together, and with UNSCOM, to develop inspection and destruction plans. Policy experts joined them in the field and then returned home to pore over inspection and intelligence reports and draft UN statements to help ensure that politics did not undermine the findings in the field. This work established lifelong bonds between allied and adversary inspectors that served our nonproliferation community well, especially in future tense situations.

Inspectors also drew upon their diverse backgrounds and skillsets to ensure the “success” of the Iraq inspections.² An international, multigenerational inspection team composed of scientists, computer experts, members of the military, diplomats, and language specialists studied the infamous, and numerous, “Full, Final and Complete Disclosure” reports and uncovered WMD programs that Saddam Hussein had hidden for decades. Through the CD negotiations and this kind of experience on the ground, junior and mid-career weapons inspectors in the latter half of the twentieth century became genuine experts.

² Kenneth Pollack, *Spies, Lies, and Weapons: What Went Wrong*, ATLANTIC (Jan./Feb. 2004).

The Pipeline Needs Repair

Today's nonproliferation regime is under pressure. Risks from new and existing threats are increasing, and international fora for agreeing on common solutions are under stress. In this setting, there is substantial need for a new cadre of professionals with the expertise necessary to conduct effective inspections. How does one become the Director of UNSCOM (Rolf Ekeus), the Director General of the IAEA (Rafael Grossi), or the lead inspector for Syrian chemical weapons inspections (Åke Sellström)? Through expertise gained in multilateral treaty negotiations; working with inspection teams under tense, time-urgent, and dangerous circumstances; chairing international weapons regimes; and engaging in policy deliberations. The requisite knowledge is acquired through many experiences, ideally both technical and diplomatic.

Unfortunately, the historical sources of such expertise are running dry. There have been no active arms control negotiations in the CD for twenty years, and UN inspections in Iraq ended in 2007. Interest in WMD at all levels is fading, including in the military.³ Many of the negotiators who trained in Geneva in the early 1990s fanned out to form international governmental organization (IGO) inspection regimes, but they often worked under employment contracts that lasted only seven years, creating crises for entities such as the OPCW once inspectors and senior leadership reached their term limits.⁴

Moreover, historical forms of expertise are not necessarily sufficient today. Early work at the OPCW, for example, focused on chemical weapons destruction. Now a different set of skills is needed to tackle covert programs, investigate assassination attempts, and address the overt use of chemical weapons. While the UN Secretary-General's Mechanism for Investigation of Alleged Use of Chemical, Biological and Toxin Weapons Use;⁵ the OPCW; and the IAEA maintain inspector training programs, the efforts in Iraq were unique in their interdisciplinarity.

A number of factors contribute to the current problem. These include inadequate government support; insufficient emphasis on non-STEM disciplines in higher education; and a lack of resources, potentially exacerbated by pandemic-related costs.⁶ The contributors also include disconnected educational programs and institutions: while relevant programs exist across the globe, they are insufficiently networked with one another. Without a broader framework that connects them, and without support from national governments, many are left to die on the vine.

Hurdles abound even for those interested in and dedicated to the field. For example, it is increasingly difficult for students seeking to move from internships to post-graduate fellowships in the field (nearly all are unpaid or underpaid, often with country-specific requirements). It is even more difficult to find entry-level positions that provide a sustainable career path. More often than not, professional opportunities in the nonproliferation, arms control, and disarmament field, particularly outside the United States and Western Europe, do not align with the educational background, work experience, and interests of newcomers. Young people are not convinced they belong in the field, and without concerted outreach to universities by practitioners, neither professors nor students know of the existing opportunities. The availability of jobs is further diminished by hiring freezes and limited funding.

It is hard to quantify the damage caused by these circumstances, but those in the field concur that the problem is real and that it affects them in their daily work. Retirements take place and few young people arrive in time to absorb lessons learned. Mid-career experts often burn out due to workload and a lack of senior leadership who will set priorities and share expertise. There is also a dearth of research and other junior-level support critical

³ This is a common observation at the U.S. National Defense University and among long-time Pentagon observers.

⁴ Laura Rockwood et al., *IAEA Safeguards: Staying Ahead of the Game* 30–31 (Swedish Radiation Safety Authority Report No. 2019:14, 2019).

⁵ *G.A. Res. 42/37 C* (Nov. 30, 1987).

⁶ The prestigious Kings College Masters in Non-Proliferation and International Security is no longer offered as of 2020.

to ensure policies are well-grounded. Whole generations are missing out on organized international security negotiations and inspection training.

As a result, it is likely that the field of nonproliferation will increasingly have to piggyback on professions that are more lucrative and/or focus on areas that allow specialization in nonproliferation, including artificial intelligence, cyber, international law, commercial licensing, disease surveillance, and chemical engineering, to name a few. Trends in the workplace now are focused on soft skills, analytical thinking, innovation, emotional intelligence, and active learning. As opportunities to study arms control and nonproliferation disappear, young professionals capable of multilateral, interdisciplinary negotiations will seek greener pastures. Unless remedial steps are taken, the requisite talent will not be available the next time an illicit weapons program needs to be ferreted out and eliminated.

The Timing is Right

Crisis brings opportunity. With appropriate planning and training, we can groom a new generation of weapons inspectors who bring fresh perspectives and life skills that match prevailing security needs. Targeted and coordinated educational, research, and career development opportunities are essential to attract and retain talented and qualified people interested in careers in arms control, nonproliferation, and disarmament. This is especially true with respect to careers involving new inspection and verification technologies. A number of efforts would help to create such opportunities.

First, there is a need to develop and share educational materials and build networks to support professional development at all levels. Very little effort has been made across and between regions and institutions to generate a common understanding of the challenges before us and how best to address them. Both U.S. programs—like the Negotiation Task Force at Harvard—and programs abroad—such as the Odessa Center for Nonproliferation Studies or South Korea's KAIST university nonproliferation program—could be connected and replicated across other domains to address this problem. The benefits of such coordination cannot be overstated, especially in building cadres of experts who understand all aspects of relevant treaties and are equipped to join inspections, as was done in Russia, Iraq, Libya, Syria, and North Korea.

Second, the U.S. government and its counterparts need to invest more resources to support cross-domain, cross-regional, and multigenerational opportunities for long-term education and career development. Foundations that once prioritized this critical work have shifted funding to cyber and artificial intelligence. Given the potential for notable progress in arms control and nonproliferation under the Biden Administration, the need for strong candidates to fill political and civil servant roles at all levels in government and related think tanks is critical. The community has fallen victim to post-Cold War beliefs that this work can be shelved, but great power rivalry has come roaring back.

Third, it is time to take a transformational approach in the mold of the extraordinarily effective Nunn-Lugar program,⁷ which removed Soviet WMD after the break-up of the USSR, converted related facilities, and oriented former employees toward peaceful purposes. While the dismantling of weapons facilities deals with the primary threat of proliferation, solutions must also convert to our understanding of international security the “minds” of those who previously, or may still, staff an authoritarian leader's covert WMD weapons program. Maintaining a cadre of multi-generational experts, ideally across WMD domains, to debate the role of these weapons might improve national decision-making.

Recognizing that technological developments now demand far greater advanced preparations for weapons inspections than in the 1990s, states have adopted a number of important programs, and these illustrate how

⁷ Jason Ellis, *Nunn Lugar's Unfinished Agenda*, ARMS CONTROL TODAY (Oct. 1997).

broader reforms might work. These efforts underpin NPT policy development. The U.S. State Department, in partnership with the Nuclear Threat Initiative, initiated the International Partnership for Nuclear Disarmament Verification.⁸ This collaborative effort enables both policy and technical experts from states with and without nuclear weapons to understand the challenges associated with nuclear disarmament verification and to delve into the details needed to develop solutions. The Partnership is engaging in practical activities such as exercises and technology demonstrations, as done in NuDiVe, to demonstrate the effectiveness of collaborative work.⁹ Another noteworthy effort involves the Quad Nuclear Verification Partnership, in which Norway, Sweden, the United Kingdom, and the United States collaborate on technical and policy levels to solve verification and monitoring challenges related to nuclear disarmament.¹⁰ These kinds of efforts should be lauded and funded.

Still another example is the EU Non-proliferation and Disarmament Consortium. This one hundred-member network of think tanks and universities¹¹ hosts eLearning courses; a publication series; internships; and an annual conference that addresses WMD, their delivery systems, conventional arms, and emerging technologies. This consortium model could be replicated between regions where government entities may not be inclined or able to work together but think tanks and universities who study “the other side” might. The model would encourage multi-generational, cross-discipline, and cross-cultural connections to ensure that governmental, IGO, NGO, and educational institutions can thrive and assist inter-governmental efforts when an inspection regime must be hastily constructed. With such arrangements, a wide variety of programs at universities, think tanks, or even on an individual level would have a broader framework in which to excel and advance. This would be particularly beneficial in regions with very few nonproliferation and arms control programs, such as the Middle East, Africa, and Latin America.

Finally, programs that ensure diverse and international participation and create lasting networks need to be connected, replicated, and developed across other domains. The Middlebury Institute’s Middle East Next Generation Arms Control Specialists Network, the Center for Nonproliferation Studies’ programs, and the IAEA’s new Marie Curie Fellowship already do so. But the UN and other IGO fellowship programs and Junior Program Officer positions should be strengthened. Disability action groups and organizations such as the Women of Color Advancing Peace, Security and Conflict Transformation should be replicated worldwide. Programs should add a focus on negotiation/inspection training and development of related simulations.¹² The U.S. Defense Threat Reduction Agency, which leads U.S. treaty inspection efforts, and its Russian counterpart should expand participation in scenario-based exercises and establish arms control training venues to introduce new generations to related concepts and practices. These changes would help to establish a cross-domain inspector pool. Younger inspectors who absorb information differently and are more familiar with advanced technologies will be needed for the development of new verification methods.

Conclusion

Coming generations deserve our urgent support; one does not become an arms control expert or weapons inspector overnight. Having been fortunate enough to coordinate policy for and serve on delegations for the

⁸ See [INTERNATIONAL PARTNERSHIP FOR NUCLEAR DISARMAMENT VERIFICATION](#).

⁹ See [NTI Experts Participate in Hands-on Nuclear Disarmament Verification Exercises in Belgium and Germany](#), NUCLEAR THREAT INITIATIVE (Sept. 25, 2019).

¹⁰ See [QUAD NUCLEAR VERIFICATION PARTNERSHIP](#).

¹¹ See [THE EU NON-PROLIFERATION AND DISARMAMENT CONSORTIUM](#).

¹² One resource for realistic materials could be the newly declassified negotiating records released by the United States, the United Kingdom, and Russia in honor of the Nonproliferation Treaty’s fiftieth anniversary. See [NPT 50th Anniversary](#), BUREAU OF INT’L SECURITY & NONPROLIFERATION, U.S. DEPARTMENT OF STATE.

three main arms control treaties and related inspection regimes, I know this from personal experience. Our challenge now is to prepare to support future inspection needs as they arise. To do so, the international community must restock the talent pipeline by linking ideas, mentors, and tools to those most capable of entering and excelling in this vital field. Without additional efforts, it will become increasingly difficult to uphold the norms embodied in our carefully negotiated treaties. It is heartening that there is a renaissance of interest in applying new and existing tools, in diverse communities, working collectively across generations, domains, and continents.