Cooperation and Threat Reduction: Learning Curves and Forgetting Curves
Opening Remarks[i] by Ron Lehman[ii]
National Academy of Sciences CTR Workshop[iii]
18 September 2017

Thank you, Libby. I am very pleased to be here today with so many friends who contributed so much to what we have long referred to as "*CTR*" – Cooperative Threat Reduction. We would all enjoy using the next two days to celebrate CTR's past accomplishments, but the real need is to stay focused on its future accomplishments. Given all the uncertainties ahead, however, let me emphasize one thing that is certain – I am speaking only for myself and not for any organization with which I am or have been associated.

Over the years, the tools for security cooperation such as CTR have evolved as the threats have changed. That much has been accomplished is undeniable. Whether we have kept up with the threats, however, is very much an open question. We certainly have <u>not</u> achieved all that we had hoped. Moreover, we may now face even greater challenges due to geo-political change and the advance and spread of technology.

Dave Franz and I were asked to speak in this first group because we co-chaired the 2009 National Academy of Sciences study of the Defense Department's CTR program.[iv] The sponsors of this workshop thought that the 2009 study might provide a baseline to assess how CTR is doing. We face a steep learning curve to deal with changed circumstances, but we also face an equally steep forgetting curve. We need to revisit what worked and what didn't work when CTR had more energy and resources than it has today. Neither all the answers nor even all the questions can be found in the 2009 DOD CTR study. Nevertheless, that study is a good place to begin so long as we recognize that the context has changed. To provide perspective on CTR in that changing context, I have organized my remarks around eight themes.

HOLISTIC

<u>First,</u> the mandate for the 2009 study was to look only at the CTR programs of the Defense Department. At the same time, the study did have important implications for all the government agencies involved in CTR, and even for NGOs and the private sector. This is not surprising. The original Nunn-Lugar program was placed in the Defense Department because that is where the money is. More importantly, as we said in our report, *"Placing the initial responsibility for CTR in DOD and drawing upon the organizational energy of the one department most practiced at rapid mobilization of resources was a primary reason for the early success of CTR."* Yet, quickly, funding for some CTR programs was transferred to other Departments and Agencies because not all of the responsibility belonged in the Pentagon and much of the expertise was to be found elsewhere. Your workshop needs to keep this holistic perspective, including its all of government aspect, up front as it examines the issues related to division of labor.

CTR 3.0?

<u>Second,</u> the 2009 study was conducted, not at the beginning of CTR, but when CTR was already at a transitional midpoint. The study recognized that circumstances in 2009 had already changed significantly from those in 1992. By 2009, many CTR programs had already made significant adjustments to those changes. Still, the study implied that a phase change was at hand. The distinguished members of the National Academy Committee[v] began to refer to this as the CTR 2.0 study to recognize not only that CTR 1.0 had made changes, but also that those improvements did not yet constitute a major upgrade. Given that we face a rapidly changing world, this workshop should ask whether there is a CTR 3.0 in our future, or even a 2.x. Or has CTR as we now know it been completely overwhelmed by events?

SIZE AND SHAPE WITHOUT A RUSSIA

<u>Third</u>, even in 2009, CTR was beginning to reflect the changing relationship with Russia. The good news was that economic conditions permitted a move away from subsidy and an aura of paternalism to a more equal and pragmatic partnership with greater burden sharing. The bad news was Moscow's increased authoritarianism, corruption, lack of transparency, and anti-Western agitation. Ironically, these negative developments in Russia were often seen first by those involved in the most positive CTR engagements.

Nevertheless, in 2009, many of CTR's most enthusiastic supporters still saw the program as really being all about Russia. This workshop needs to come to grips with the fact that, for the immediate future, neither Russia nor any other single country will provide a big market for CTR and especially for the large industrial activities that were often seen as the Crown Jewels of CTR. Having said that, care must be taken to insure that certain capabilities are available when needed. Consider, for example, the ability to eliminate those chemical weapons removed from Syria. The workshop needs to consider the size and shape of the CTR enterprise taking into account meaningful scenarios and the capabilities they imply.

NATIONAL INTEREST

<u>Fourth</u>, well before CTR in Russia took off, many other countries became involved. More partners meant more resources, and the breakup of the Soviet Union created additional governments dealing with the risky legacies of the Cold War. Yet the 2009 Report suggested that CTR should think even bigger – networking beyond the former Soviet Union. The report noted that CTR, while not on the scale of the Marshall Plan, *"generated great hope and stability in a time of political and economic crisis"* and could be useful in other troubled regions of the world. At the same time, CTR involves many different cultures and regimes. In some cases, these CTR engagements involve great cooperation, but only against smaller threats. In other cases, they offer little cooperation despite the existence of significant threats.

Indeed, some nations will not cooperate at all because they think CTR assumes that they are the threat. To desensitize the tools from the name and to reflect a new approach, the 2009 Report was entitled "Global Security Engagement." Today, however, in some circles around the world, the very word "global" implies "not in the national interest." Your Workshop needs to address the fundamental organizing principles of future CTR, including the title, the bumper sticker, and the elevator speech in ways that suggest at home and abroad that such cooperation really is in each of the many different participants' national interest.

GEO-STRATEGIC AND TECHNOLOGICAL SURPRISE

Fifth, in the words of the 2009 report, *"The advance and spread of dual-use technology will increasingly make access to highly destructive or disruptive technology easier and cheaper for small countries and smaller groups of nonstate actors. No "silver bullet" is likely. It is in this context that the committee believes a fresh look at DOD's CTR program is most warranted."* Today, geo-political turmoil might join the spread of diverse, advanced dual-use technology as a "most warranted" challenge for CTR. The complex interaction of political and technological change means that, today, neither strategists nor technologists feel comfortable predicting the future.

Consider North Korea. By the time of the 2009 report, the search for CTR-like tools to reshape the future of North Korea already had a long history. Things have not gone well. At the tenth anniversary of the International Science and Technology Center (ISTC), a State Department program originally in DOD, South Korea's Ambassador to Moscow made a speech in which he looked forward soon to the day that North Korea would be a member of that science center. Three years later, on October 9, 2006, twenty-one years after North Korea's accession to the Non-Proliferation Treaty (NPT), fourteen years after concluding the North-South Denuclearization agreement in which both Koreas gave up nuclear enrichment and reprocessing, and twelve years after the Agreed Framework, North Korea conducted its first of at least six nuclear weapons detonations. Just two weeks ago, North Korea apparently detonated a thermonuclear weapon successfully. And Pyongyang's ballistic missiles are now reaching intercontinental range.

Two weeks from now, on October 4th, we will commemorate the 60th anniversary of the launch of Sputnik. That simple technology demonstration spawned a crisis that humiliated a superpower, launched the greatest technological arms race in history, and encouraged risky behavior leading to the Berlin Wall and the Cuban Missile Crisis. Ironically, the Western response to Sputnik also led to a technologically transformed world that favored rule of law democracies and free markets. For a number of decades at the end of the Cold War, the World seemed much safer and prosperous. Sputnik-like events are rare. Experts can debate how events like Chernobyl, 911, cyber crimes, or a thermonuclear armed North Korean ICBM will affect security, but the interaction of dramatic political and technological change today would seem to increase the odds of big surprises. This workshop should consider how initiatives in the realm of CTR might come to grips with the

benefits and dangers of advancing technology and reduce the risk associated with geo-strategic surprise.

EMBEDDED ENGAGEMENT

Sixth, the arms control revolution that took place as the Cold War came to an end marked a more cooperative, more transparent, and more concrete path to international arms restraint than had been possible during the preceding decades of disarmament debate. CTR was a natural follow on to on-site inspections, perimeter portal monitoring, telemetry exchanges, the Joint Verification Experiment, "Fly-before-Buy" verification demonstrations in START, and the "Open Labs" initiatives. The 2009 report recommended that CTR "*provide support to the implementation of international treaties and other security instruments aimed at reducing threat, such as the G8 Global Partnership, the Proliferation Security Initiative, United Nations Security Council Resolution 1540, and the Global Initiative to Combat Nuclear Terrorism."* These initiatives broadened the arena of detailed cooperative measures to be taken transparently together to address the specific national security concerns of parties. Although there is a place for proselytizing norms and also for unilateral and even coercive measures, this workshop should examine whether more hands-on, cooperative measures and embedded engagement provide a more practical and effective path toward enhanced national security.

MEASURES OF MERIT

Seventh, the 2009 Report said of CTR: *"Over time, many of its revolutionary activities became routine, and as such came to reflect all the advantages and disadvantages of being taken for granted. Bureaucratization, micromanagement, and the Washington turf wars invited rigorous measures of merit even as bigger questions were asked about the appropriateness of the program for today's circumstances."* Business school journals are filled with papers on how innovative enterprises discover their comparative advantage, take off, expand, become complex, get taken over by accountants and lawyers, loose their way, and then die. All of the CTR programs run this risk. The universal remedy seems to be even more quantitative metrics in the spirit of Friedrich Nietzsche: *"That which does not kill us, makes us stronger."* The 2009 Study recommended that the problem of finding meaningful and functional measures of merit be given greater attention. Jay Davis, my colleague from Lawrence Livermore, who was the founding Director of the Defense Threat Reduction Agency, chaired a NAS Metrics study on metrics for the DOD CTR program.[vi] Over the next two days, your workshop could reduce many obstacles to the design, implementation, and funding of CTR efforts if it could ensure that the measures of merit selected, especially if they are quantitative, actually reflect the value of the activities to their core international security and nonproliferation missions.

LEADERSHIP

<u>Eighth</u>, and as my final point for today, I want to raise the problem of leadership and sponsorship – that is, how do you resource and sustain momentum for effective CTR activities? Remember, the 2009 study was mandated by *Section 1306 of the National Defense Authorization Act for Fiscal Year 2008.* Congress directed the Secretary of Defense to have the Academy do the study. The CTR program has always had its skeptics and critics including among those responsible for oversight. And they have not always been wrong. Remember the concept of "defense conversion" – using battle tank assembly lines to build washing machines – very robust washing machines. Still, in its Golden Age, CTR had many friends and even a few, powerful champions in both the Executive and Legislative Branches and in both political parties. What made that possible? One reason is clear. The 2009 Report noted that "*scholars and policy makers continue to speculate on how bad the outcomes might have been had a CTR program not been created in 1992."* Fortunately, many key CTR programs could document outcomes far more positive for the security of the United States than those likely in a no-CTR world. With that in mind, this workshop could usefully elaborate alternative outcomes we might experience if we did not have CTR engagement tools.

Thank you.

---

[i] Prepared remarks may differ slightly from actual presentation. Any views expressed are not necessarily the positions of DOD, DOS, NNSA/DOE, LLNL or any other institutions with which Ron Lehman is or has been associated.

[ii] Dr. Ronald F. Lehman is Chair of the U.S. Department of Defense Threat Reduction Advisory Committee, Chairman of the Governing Board of the International Science and Technology Center, and Counselor at Lawrence Livermore National Laboratory. Previously, Ron was Director of the U.S. Arms Control and Disarmament Agency when the START I, START II and CFE Treaties, the CW Convention, the Joint Verification Experiment, and other historic agreements were concluded. Ron served in the Defense Department as Assistant Secretary for International Security Policy, in the State Department as Ambassador and U.S. Chief Negotiator on START I, in the White House as Deputy Assistant to the President for National Security Affairs and on the NSC Staff. For the Department of Energy, Ron was the US-Snezhinsk Working Group Co-Chair. Ron was a member of the President's Advisory Board on Arms Proliferation Policy. He was a district advisor in Vietnam with the U.S. Army. Ron co-chaired (with David Franz) the Committee on Strengthening and Expanding the Department of Defense's Cooperative Threat Reduction (CTR) Program for the National Academy of Sciences.

[iii] Cooperative Threat Reduction (CTR) Programs for the Next Ten Years and Beyond, September 18-19, 2017, NAS Keck Center, 500 5th St NW, Washington, D.C. Sponsored by the National Academy of Sciences (NAS), the Project on Advanced Systems and Concepts for Countering Weapons of Mass Destruction (PASCC), and the Naval Post-Graduate School (NPS)
Introduction Micah Lowenthal, National Academy of Sciences (NAS)

1) Brief history of Cooperative Threat Reduction (CTR), WMD elimination and the NAS CTR 2.0/Global Security Engagement report Panel Chair: Libby Turpen, Octant Associates

Goals of the workshop, CTR and WMD elimination conceptual framework Speaker: Libby Turpen, Octant Associates

Cooperative Threat Reduction: Learning Curves and Forgetting Curves Speaker: Amb. Ron Lehman, former Director, Arms Control and Disarmament Agency

Reducing the Threat from Nuclear Weapons and Delivery Systems and the Future of CTR to Diminish the Nuclear Threat Speaker: William Moon, Defense Threat Reduction Agency

Reducing the Threat from Biological Weapons and Biotechnology and the Future of CTR to Diminish the Biological Threat Speaker: David Franz, former Commander, USAMRIID

Reducing the Threat from Chemical Weapons and the Future of CTR to Diminish the Chemical Threat Speaker: Mallory Stewart, former Deputy Assistant Secretary, Department of State

2) The changing international security landscape Panel chair: Sharon Squassoni, Center for Strategic and International Studies

"New" Technologies; New Threats? Speaker: Steve Fetter, University of Maryland

Reducing Future Biological Risk in the Context of Global Health Security Speaker: Elizabeth Cameron, NTI

The Proliferation of Technical Expertise in Biological Sciences Speaker: James Le Duc, Galveston National Laboratory

Foreign Policy in a Multipolar World Speaker: Vikram Singh, Center for American Progress

3) Vision for the future of CTR Introduction: Libby Turpen, Octant Associates

Vision for the Future of CTR from the Department of Defense Speaker: Derek (Dirk) Maurer, Deputy Assistant Secretary of Defense for Countering Weapons of Mass Destruction

Vision for the Future of CTR from the Department of State Speaker: Phillip Dolliff, Acting Deputy Assistant Secretary for Nonproliferation Programs

4) CTR and the 2017 threat environment Introduction: Andrew Weber, Former Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs

CTR and the 2017 Threat Environment Speaker: William Tobey, Harvard University, former Deputy Administrator for Defense Nuclear Nonproliferation, NNSA

B) CTR for the next 10 years and beyond
(Moderator-led concurrent breakout sessions discussions, see question handout) Breakout session 1, Addressing Biological Threats, moderator: David Franz

Rapporteur: Ben Rusek, NAS

Breakout session 2, Addressing Nuclear and Other Threats, moderator: Sharon Squassoni Rapporteur: Micah Lowenthal, NAS

End of Day 1, reception, co-sponsored by the

5) The way ahead for CTR, discussion of U.S. Government Programs Panel Chair: Seth Carus, National Defense University

Speaker: Jay Finch, Department of Defense Speaker: Alexander Stolar, Department of State Speaker: Hillary Carter, National Security Council Speaker: Elly Melamed, National Nuclear Security Administration Speaker: Inger Damon, Centers for Disease Control and Prevention Speaker: Lowell Schwartz, Senate Foreign Relations Committee Discussion Coffee Break

6) Using new tools to address the CTR mission Panel Chair: Capt. John Holmes, USCG (retired), former Deputy Executive Director of Operations, Port of Los Angeles

The Role of Global Health and Health Diplomacy in Biosecurity, Biodefense and Threat Reduction Speaker: Amb. Jimmy Kolker, former

Assistant Secretary for Global Affairs, Department of Health and Human Services

International Aid Efforts Speaker: Andrew Natsios, Texas A&M University, former Administrator of the U.S. Agency for International Development

Publicly Available Information and Methods for Arms Control Speaker: Lisa Costa, PlanetRisk, Inc. and former Early Threat Warning Panel Chair for The Defense Science Board Task Force on Deterring, Preventing, and Responding to the Threat or Use WMD

Efforts to Counter North Korean Proliferation Speaker: William Newcomb, Johns Hopkins University, former member of the United Nations Security Council North Korea Panel of Experts

7) Global Security Engagement for the next ten years and beyond Introduction: Andrew Weber

Global Security Engagement for the Next Ten Years and Beyond Speaker: Amb. Laura Holgate, Harvard University, former U.S. Representative to the Vienna Office of the UN and IAEA

Summary Co-chairs: David Franz and Libby Turpen Synthesis of symposium and breakout session key points and suggestions for future activities

[iv] GLOBAL SECURITY ENGAGEMENT A New Model for Cooperative Threat Reduction (2009), A Report of the National Research Council, National Academy of Sciences Press, 2009, at https://www.nap.edu/catalog/12583/global-security-engagement-a-new-model-for-cooperative-threat-reduction, accessed 15 Sep 17.

[v] COMMITTEE ON STRENGTHENING AND EXPANDING THE DEPARTMENT OF DEFENSE COOPERATIVE THREAT REDUCTION (CTR) PROGRAM: David Franz , (co-chair) Midwest Research Institute/Kansas State University; Ronald Lehman , (co-chair) Lawrence Livermore National Laboratory; Robert B. Barker , Lawrence Livermore Laboratory (retired) ; William F. Burns , U.S. Army War College; Rose E. Gottemoeller, Carnegie Endowment for International Peace; John Hamre, Center for Strategic and International Studies; Robert Joseph , National Institute for Public Policy; Orde Kittrie, Arizona State University; James LeDuc, Galveston National Laboratory; Richard W. Mies , private consultant; Judith Miller , Manhattan Institute; George W. Parshall, Du Pont (retired); Thomas R. Pickering , Hills & Company, International Consultants; Kim Savit , University of Denver and private consultant; Anne Harrington (Study Director), The National Academies; Rita Guenther (Senior Program Associate), The National Academies; and Benjamin Rusek (Senior Program Associate), The National Academies.

[vi] National Research Council. 2012. *Improving Metrics for the Department of Defense Cooperative Threat Reduction Program*. Washington, DC: The National Academies Press. https://doi.org/10.17226/13289.