



COOPERATIVE NONPROLIFERATION: GETTING FURTHER, FASTER

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ACRONYMS

API	Active Pharmaceutical Ingredient
ASD (ISP)	Office of the Assistant Secretary of Defense for International Security Policy
ASD(S&TR)	Office of the Assistant Secretary of Defense for Strategy and Threat Reduction
ATSD (NCB)	Office of the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs
BCR	Bio-Chem Redirect
BII	BioIndustry Initiative
BTEP	Biotechnology Engagement Program
BTRP	Biological Threat Reduction Program
CNP	Cooperative Nonproliferation
CRDF	Civilian Research and Development Foundation
CTR	Cooperative Threat Reduction
CTRIC	Cooperative Threat Reduction Integrating Contracts/Contractors
CWDF	Chemical Weapons Destruction Facility
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DNDO	Domestic Nuclear Detection Office
DoD	Department of Defense
DoE	Department of Energy
DTRA	Defense Threat Reduction Agency
EPA	Environmental Protection Agency
EWGPP	Elimination of Weapons-Grade Plutonium Production
EXBS	Export Control and Related Border Security Assistance
FDA	Food and Drug Administration
FREEDOM	Freedom for Russia and Emerging Eurasian Democracies and Open Markets
FSU	Former Soviet Union
G8	Group of Eight
GAO	Government Accountability Office
GIPP	Global Initiatives for Proliferation Prevention
GLP	Good Laboratory Practices
GMP	Good Manufacturing Practices
GNEP	Global Nuclear Energy Partnership
GTRI	Global Threat Reduction Initiative
HEU	Highly Enriched Uranium (greater than 20 percent ^{235}U)
HASC	House Armed Services Committee
HIRC	House International Relations Committee
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
ID/IQ	Indefinite Delivery/Indefinite Quantity
IED	Improvised Explosive Device
IND	Improvised Nuclear Device

IPP	Initiatives for Proliferation Prevention
ISN	State Department Bureau of International Security and Nonproliferation
ISTC	International Science and Technology Center
JIEDDO	Joint Improvised Explosive Device Defeat Organization
KGB	Komitet Gosudarstvennoy Bezopasnosti (State Security Committee)
LETI	Law Enforcement Targeted Initiative
LEU	Low Enriched Uranium
MPC&A	Material Protection, Control, and Accounting
MVD	Ministerstvo Vnutrennikh del Rossiiyskoy Federatsiy (Ministry of the Interior of the Russian Federation)
N&IS	Nonproliferation and International Security
NADR	Nonproliferation, Anti-terrorism, Demining, and Related Programs
NATO	North Atlantic Treaty Organization
NCI	Nuclear Cities Initiative
NDF	Nonproliferation and Disarmament Fund
NIH	National Institutes of Health
NIS	Newly Independent States
NGO	Non-Governmental Organization
NMP&C	Nuclear Material Protection and Cooperation
NNSA	National Nuclear Security Administration
NPT	Nuclear Nonproliferation Treaty
NSC	National Security Council
NWSS	Nuclear Weapons Storage Security
OMB	Office of Management and Budget
RDD	Radiological Dispersion Device
RRRFR	Russian Research Reactor Fuel Return
SBIR	Small Business Innovation Research Program
SLBM	Submarine-Launched Ballistic Missile
SOAE	Strategic Offensive Arms Elimination
SRF	Strategic Rocket Forces
SSBN	Strategic Submarine Ballistic Nuclear (US Navy Designation)
START I	Strategic Arms Reduction Treaty I
STCU	Science and Technology Center in Ukraine
TADR	Threat Agent Detection and Response
UN	United Nations
UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
USD (AT&L)	Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
USD (P)	Office of the Under Secretary of Defense for Policy
USDA	United States Department of Agriculture
USEC	United States Enrichment Corporation
USIC	United States Industry Coalition
WMD	Weapons of Mass Destruction

PREFACE

Dear Reader,

I am pleased to present to you *Cooperative Nonproliferation: Getting Further, Faster* by Brian Finlay and Elizabeth Turpen, Senior Associates and Co-Directors of the Cooperative Nonproliferation program at the Henry L. Stimson Center. The study provides an important and fresh look at one family of nonproliferation activities, and makes useful recommendations for policymakers engaged in this critical work.

This book takes a new and bold approach to the issue of sustaining the important programs established at the end of the Cold War to dismantle Soviet-era weapons programs and to engage scientists in peaceful work. Finlay and Turpen review the proud origins and history of the cooperative nonproliferation programs, but quickly identify the shortcomings and structural weaknesses that derive from shifting priorities, the fatigue of a program that has been around for a decade and a half, and some of the unintended consequences of decisions made early on. They go on to explore ways to sustain and invigorate this important work, and propose new approaches that would engage more productively the private sector and post-Soviet counterparts in and out of government.

Financial support for the project was provided by the John D. and Catherine T. MacArthur Foundation, the Ploughshares Fund, and the Ford Foundation. The authors and I are grateful for that support. Program officers from those foundations, Lukas Haynes, Naila Bolus, Paul Carroll, Bonnie Jenkins, and Megan Burke individually made substantive contributions to the project.

We hope this book will be useful for those already engaged in cooperative nonproliferation, as well as for those new to the field. It is both a primer on the early politics and history of CNP, and a provocative policy manifesto designed to ensure that the US and its allies continue to give necessary attention to countering the threat from the proliferation of weapons, know-how, and material.

Sincerely,



Ellen Laipson

ACKNOWLEDGEMENTS

We want to express our gratitude to our many colleagues whose knowledge and insights helped to fashion our project and this final report. Among the staff of the Stimson Center, we are particularly indebted to our President, Ellen Laipson, and Vice President, Cheryl Ramp, for their unwavering encouragement and support of our efforts. Alex Reed provided the primary research assistance for this monograph and his contribution has been especially substantial. Research assistance in the early phases was also provided by Alise Coen, Victoria Johnson, and Damien Sisca. Editorial and research support was also provided by Rita Grossman-Vermaas. Jane Dorsey and Marvin Lim were responsible for editing and formatting this publication. And we are grateful to all of our colleagues at the Henry L. Stimson Center who make the organization a vibrant, intellectually stimulating, and enjoyable place to spend our workdays.

Financial support for this project was provided by the John D. and Catherine T. MacArthur Foundation, the Ploughshares Fund, and the Ford Foundation. The authors and the Henry L. Stimson Center are grateful for their support. Program officers from those foundations, Lukas Haynes, Naila Bolus, Paul Carroll, Bonnie Jenkins, and Megan Burke, made important conceptual recommendations and contributions to the project.

Also deserving honorable mention is Trevor Smith of Canada's Department of Foreign Affairs and International Trade, whose commitment to effective implementation of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction is as enviable as his willingness to guide us through the complex maze of the G8. We also call out Joan Furlong of the United States Industry Coalition (USIC) as well as numerous individuals—especially Linda Staheli—at the Civilian Research and Development Foundation (CRDF) whose commitment to their nonproliferation mission and to this study improved both immeasurably. Finally, the novel input and unique perspectives of our colleague Frederick Kellett, former Executive Vice President of Byelocorp Scientific Inc., and advisor to our efforts at the Stimson Center advanced significantly our thinking on engagement of the private sector to advance a wide spectrum of goals sought by our project including, *inter alia*: sustainable nonproliferation, economic development, local capacity building, legal reform, advances in international public health, and industrial reform in the states of the FSU.

Through this multifaceted effort, we have also sought to develop a new model for NGO participation in the policymaking process—a public-private

partnership for national security that leverages the strengths and contributions of governments, industry, and the non-profit, non-governmental community. Ultimately, this project could not have been successful without the dedicated participation of individuals involved and deeply committed to the Cooperative Nonproliferation programs—both within government and in the private sector. Despite the common critique that these programs are not *doing* enough, *quickly* enough, embedded within the three federal agencies and their supporting industry partners is a collection of dedicated, intelligent, and passionate individuals who care deeply about their mission and who serve the United States with great distinction. This monograph surveys their efforts over the course of the past fifteen years, identifies the obstacles to success that they face in operationalizing US policy objectives, and proposes new solutions for effectively achieving these nonproliferation goals. Any criticism of the programs contained herein should be viewed with the understanding of our deepest respect and admiration for the people involved in implementing this massive, complex, and critical national security agenda.

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January 2007

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A NEW APPROACH: A PUBLIC/PRIVATE PARTNERSHIP ON NATIONAL SECURITY

BACKGROUND

In the fifteen years since their inception, the Cooperative Nonproliferation programs (CNP) within the US Departments of Defense, Energy, and State have proven an unparalleled, if constrained, foreign policy success.¹ Matched by massive reductions in the US arsenal, more than 6,900 former Soviet nuclear warheads have been deactivated. Over 600 intercontinental ballistic missiles once pointed at the United States and 155 strategic bombers that once prowled the skies preparing to drop their nuclear ordnance on Western cities have been destroyed. Also, 906 nuclear air-to-surface missiles have been eliminated and 30 nuclear submarines, some of which were capable of carrying 112 warheads to within miles of the US coastline, have been decommissioned. In addition, eighty-three percent (83%) of Russian facilities storing weapons-usable fissile material have received security upgrades and 285 metric tons of highly enriched uranium (HEU) from dismantled nuclear weapons have been blended down to non-weapons-usable low enriched uranium (LEU) to be burned in civilian power reactors. Innovative new partnerships developed to promote peaceful joint US-Russian research at forty-nine former biological weapons facilities are ongoing. Finally, over 4,000 former Soviet weapons scientists have been redirected into sustainable civilian employment.

Almost as significant as the hard security dividends on these investments have been the immeasurable soft security “spin-off” benefits. For instance, programs designed to mothball former weapons facilities in the FSU have spawned new foreign and locally-owned and operated companies. In turn, business management, marketing, and finance skills once anathema to the state-run economies of the region have been transferred from the US private sector to its FSU counterparts. Innovative research partnerships between the scientific communities of erstwhile adversaries have generated new products—from

¹ Throughout this report the term “Cooperative Nonproliferation” (CNP) will be used to refer to the entire suite of nonproliferation programs throughout US federal agencies. Cooperative Threat Reduction (CTR) refers only to those programs managed by the Department of Defense. For a more comprehensive scorecard of nonproliferation successes, see Annex A.

immune boosting pharmaceuticals to new landmine detection technologies—and successfully introduced them into the marketplace. A new and heretofore absent understanding of quality control, cost accounting, and financial auditing in these states has been fostered in the close working relationships with US private sector entities. Regional economic growth has promoted stability in potentially volatile countries and turned prevailing models of development and democracy building on their head. The comprehensive list of successes is striking in its breadth of accomplishment, and impressive in its depth of engagement.

With both tangible “hard” and “soft” security benefits to these efforts, it is not surprising to have witnessed the adoption of Cooperative Threat Reduction (CTR)-type programs by other US Government agencies to address a wide range of weapons, materials, and knowledge of proliferation concern. Equally unsurprising has been the rush to embrace the program’s utility, however superficially, across the political spectrum. In what has been perhaps the most revisited quote of the 2004 US election campaign, President George W. Bush and Senator John Kerry agreed during the first presidential debate that the threat of a nuclear armed terrorist is the greatest threat to the national security of the United States. The President has repeatedly stated his determination to keep the “world’s most dangerous weapons out of the hands of the world’s most dangerous people.” To that end, the Bush Administration has requested, and the US Congress has appropriated, more than one billion dollars annually for the array of threat reduction and nonproliferation programs that now are spread across three main government Departments—Energy, Defense, and State.²

Throughout the history of the programs, the US Government has been monitoring progress closely, as evidenced by the approximately 140 reports released on Cooperative Threat Reduction and related activities since 1992 (see Appendix A). The private sector and academia have also gotten involved, as more than 1600 companies, universities, and other research institutions have contributed to, or been involved with, CNP-related projects since the programs began. In Washington alone, more than thirty non-governmental organizations with both private and public funding have developed efforts over the past decade designed to inspire grassroots activism, educate the public, lobby the US Government, publish new ideas, analyze and critique ineffective programs, appeal to the mass media, promote informal discussions between policymakers,

² Starting with a budget at the Department of Defense of just US\$25 million in FY1992, the programs today have grown into multi-year, multi-country efforts totaling approximately US\$1.3 billion in Russia, the former Soviet republics, and other nations of proliferation concern. The President’s FY07 request includes about US\$372 million for the Defense Department’s Cooperative Threat Reduction (CTR) program, US\$834 million for Department of Energy (DoE) nonproliferation programs, and US\$163 million for State Department nonproliferation programs.

or otherwise influence government programs as they relate to the threat reduction and nonproliferation agenda.

A recent survey of public opinion indicates that support for nonproliferation programs is not limited to the Washington policy community. “Of the thirty foreign policy goals tested, ‘Keeping nuclear weapons away from countries and groups that are hostile to the United States and our allies’ received the highest priority among Americans. Six in ten respondents (60%) gave this goal a priority ranking of 10—including 53% of Independents, 72% of Republicans, and 53% of Democrats. . . . In fact, all three questions about the proliferation of nuclear weapons ranked in the top five of voter concerns.”³

As one observer stated concisely, the rationale for Cooperative Nonproliferation is simple: No nuclear material. No bomb. No nuclear terrorism.⁴ But despite this straightforward causal relationship and the myriad organizations and individuals supporting CNP, the United States Government has not adequately accelerated cooperative efforts to eliminate this threat to our national security. While undeniably successful and politically popular, these programs have never been unleashed to realize their full potential. A systematic look at the history of these programs indicates that failure to provide both adequate resources and flexibility to program managers has been bipartisan. Neither the Clinton administration, the Bush administration, nor the Congress under Democratic or Republican leadership has given these programs the priority they deserve. While the first Clinton administration deserves much credit for building the existing network of programs within the three government agencies involved, the second administration witnessed flat-lined funding requests and largely unimaginative responses to evolving threats.⁵ These anemic funding requests have fed a

The pace of securing materials and providing civilian opportunities for former weapons scientists, engineers, and technicians has never been commensurate with the threat.

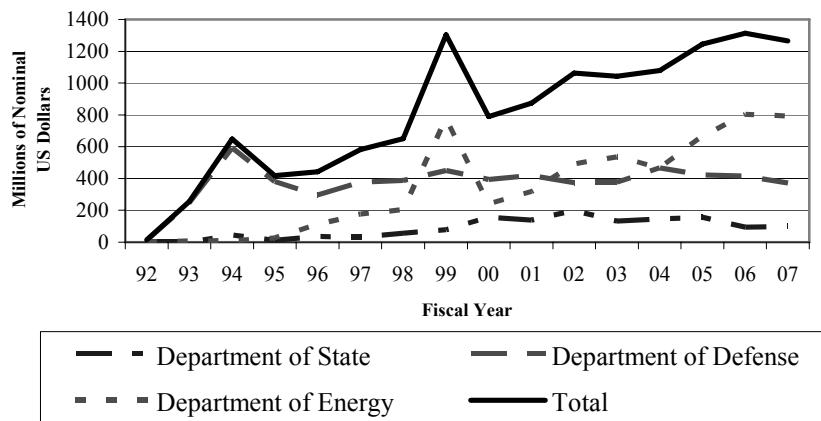
³ The Security and Peace Institute and The Marttila Communications Group, *American Attitudes toward National Security, Foreign Policy, and the War on Terror* (New York: The Century Foundation, 2005): 5, accessed at: <<http://www.securitypeace.org/pdf/AmericanAttitudesNatSecPoll.pdf>>.

⁴ Graham Allison, "How to Stop Nuclear Terror," *Foreign Affairs*, 83, no. 1 (2004): 64-74, accessed at: <<http://www.foreignaffairs.org/20040101faessay83107/graham-allison/how-to-stop-nuclear-terror.html>>.

⁵ Office of the Secretary of Defense, "FY2000/2001 Biennial Budget Estimate, Volume 1: Justification for FY2000" (February 1999), accessed at: <http://www.dod.mil/comptroller/defbudget/fy2000/budget_justification/pdfs/operation/>

perception that the programs are merely second tier responses to the threat of WMD proliferation rather than the first line of defense against catastrophic terrorism (see Figure #1). Similarly, the Bush administration has received failing grades for its handling of the programs. According to the Members of the 9/11 Commission, the US Government has failed to request the personnel and resources or provide the domestic and international leadership requisite to secure all weapons-grade material within the shortest possible timeframe.⁶ Adjusted for inflation, financial investments in many programs abroad—let alone the pace of progress—have actually diminished since 9/11.⁷

**Figure 1: Cooperative Nonproliferation Budgets by Agency:
FY1992-FY2007⁸**



The Nunn-Lugar threat reduction and nonproliferation programs remain the best and most cost-effective means of mitigating the threat of terrorist groups' acquiring weapons of mass destruction (WMD) capabilities. Yet, despite widespread efforts dedicated to urging the acceleration and expansion of these programs, the pace of securing materials and providing civilian opportunities for former weapons scientists, engineers, and technicians has never been commensurate with the threat. According to one assessment, at current rates,

⁶[fy00pb_voll_part3.pdf](#).

⁷ 9/11 Public Discourse Project, “Final Report on 9/11 Commission Recommendations” (December 5, 2005), accessed at: <http://www.9-11pdp.org/press/2005-12-05_report.pdf>.

⁷ Brian Finlay and Andrew Grotto, *The Race to Secure Russia’s Loose Nukes: Progress Since 9/11* (Washington: The Henry L. Stimson Center and the Center for American Progress, 2005): 29.

⁸ The spike in the FY 1999 budget for DoE reflects a one-time supplemental appropriation of US\$325 million by the US Congress for the HEU Purchase Agreement. Figures exclude non-FSU threat reduction appropriations, and are taken from: Project on Managing the Atom, “Threat Reduction Budgets,” *Securing the Bomb* (2006), accessed at: <http://www.nti.org/e_research/cnwm/charts/cnm_funding_interactive.asp>.

efforts to secure Russian weapons grade materials alone may not be completed until the year 2030—leaving open a 23-year window for terrorists to acquire the necessary materials to construct a nuclear weapon.⁹

Even this cursory examination of the strategic landscape surrounding Cooperative Nonproliferation initiatives suggests a fundamental disconnect between support and action. We find that grounds for this divide are four fold: First, but for a select few Members of Congress, CNP has long been viewed more as foreign aid to the former Soviet states than as US national security programs. This is especially true of those programs designed to address the widening brain-drain proliferation threat. Second, due to its perceived complexities, nonproliferation policy has often been treated as the exclusive purview of the Pentagon and a select group of Administration insiders. Consequently, there has been a tendency on the part of the American public, and more distressingly, a vast majority within the United States Congress, to defer to the Executive branch. As such, Congress has frequently abdicated its responsibility for oversight. Third, despite widespread support among NGOs and the public at large, active commitment to CNP programs is shallow, leaving them threatened by some defense hawks in Congress who see the programs as a direct challenge to the defense spending priorities of the Pentagon and the Department of Energy. As a result, CNP is consistently pitted against national security spending that can translate to direct benefits for Members' home districts.

The appropriations successes of the US ballistic missile defense programs, despite clear statements from the intelligence community and the Pentagon that the threats they seek to address are at best, second tier, typifies the challenges faced by supporters of the nonproliferation agenda. Finally, critics of CNP have successfully encumbered some of these programs by insisting on onerous certification and reporting requirements, complicating program execution through program reorganization, linking them to unrelated foreign policy objectives, and otherwise impeding their effective implementation.

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of the 9/11 Commission,
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timeframe.*

⁹ Finlay and Grotto, *The Race to Secure Russia's Loose Nukes* (2005).

In January 2005, the Henry L. Stimson Center launched an initiative designed to address the root causes of these disconnects by articulating a series of steps that must be taken to remove the impediments to CNP programs, seek sustainable new opportunities for these efforts, and leverage their impact to ensure the highest possible return on investment across a full spectrum of discrete but interrelated foreign policy goals. The project was also designed to simultaneously strengthen political will and capacity of CNP proponents across all sectors while aggressively promoting the hard and soft security benefits these programs afford. By proposing innovative solutions to existing implementation challenges, reformulating current programs, and strengthening political will, our goal is to strengthen the nonproliferation toolkit into and beyond 2010.

We believe that existing NGO models to influence government policy—particularly on issues of foreign and defense policy—are frequently flawed. The power of a good idea is not sufficient. Rather novel ideas require commensurate political support to be translated into reality. Without the creation of a committed constituency to build a bridge between analysis and action, success in

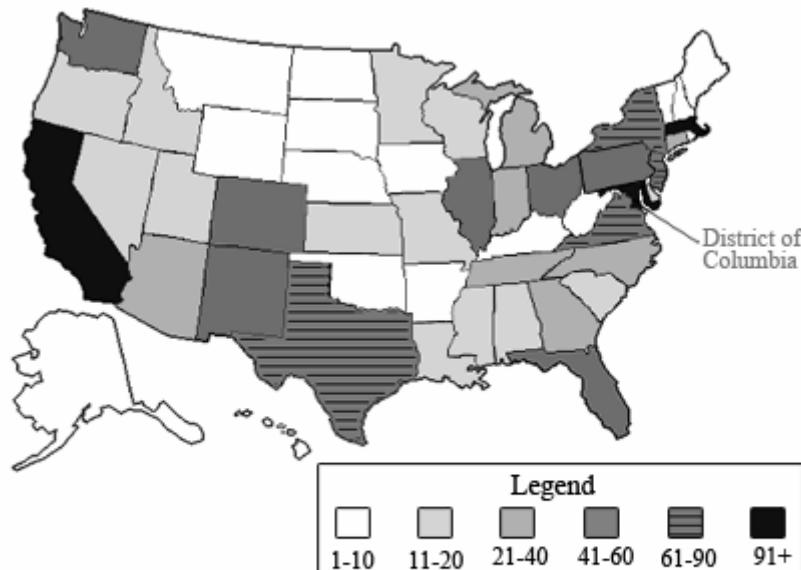
The CNP agenda is executed in the states of the FSU, but it does bring value in the form of jobs back to many congressional districts. In more than fifteen years of operation, every state in the country and virtually every district on the legislative map has contributed a private company or research institution to the execution of the nonproliferation programs.

this or any other area of public policymaking will ultimately prove elusive. Forward momentum on the threat reduction and nonproliferation agenda will therefore require both innovative ideas and the political inclination to enact them. Without sufficient will, the bureaucratic obstacles and financial support necessary to operate these programs effectively and sustainably into the future will not be forthcoming. We believe that the means necessary to build support within the US Government can be fostered by demonstrating the existence of an engaged and visible constituency for these programs within key sectors across the country. There is no

greater interest than self-interest, and no one constituency can appeal to Capitol Hill's self-interest more than private industry. The CNP agenda is executed in the states of the FSU, but it does bring value in the form of jobs back to many congressional districts. In more than fifteen years of operation, every state in the country and virtually every district on the legislative map has a private company or research institution engaged in the execution of these nonproliferation

programs. Figure #2 shows the wide geographic distribution of CNP companies, universities, and other institutes across the United States.

Figure 2: Geographic Distribution of Companies, Universities, and Other Institutions across the United States Engaged in Collaborative Research in the FSU



Refers to the number of US institutions or companies participating in nonproliferation projects in the former Soviet Union. For a complete list, see www.stimson.org/cnp.

By building relationships between NGOs, program managers, policymakers, and the private sector, our goal is to develop and promote a comprehensive approach to combat the proliferation of weapons of mass destruction that moves from conceptualization to pragmatic implementation.

A survey of existing efforts to promote Cooperative Nonproliferation reveals no shortage of NGO, academic, or even grassroots efforts. The role of nongovernmental organizations in shaping the original CTR agenda was especially significant. Just months after the collapse of the Soviet Union, the Carnegie Corporation of New York brought specialists on cooperative security and conflict resolution together with experts on WMD nonproliferation. The purpose of this Prevention of Proliferation (PoP) committee was to develop new cross-sectoral approaches to the dangers presented by nuclear, biological and chemical weapons. Senators Sam Nunn (D-GA) and Richard Lugar (R-IN) joined John Steinbruner, Ashton Carter, and William Perry as active members of

the steering committee. The work of the PoP committee laid the groundwork for the *Soviet Nuclear Threat Reduction Act of 1991* and the rise of the Cooperative Threat Reduction program. However, since the advent of the initial programs in the early 1990s, success in translating ideas into action and opinion into policy, particularly from outside of government, has been marginal at best.

This conclusion suggests that a critical link is absent. In almost any area of policymaking, the private sector wields a significant and influential voice to lawmakers. Industry represents a unique resource, often operating in regions of the world and collecting knowledge and capacities that governments are unable to obtain. As such, its role in shaping national policy in the United States cannot and should not be ignored. In the case of threat reduction and nonproliferation, the role of the private sector is particularly significant, from providing support for program managers within the federal agencies, to direct implementation of CNP on the front lines throughout the FSU and beyond. But despite the indispensable role of industry to Cooperative Nonproliferation, efforts to forge new partnerships with the private sector in shaping and implementing US nonproliferation programs have been *ad hoc* and, therefore, neither strategic nor sustainable. Project managers within the Executive agencies are generally too overwhelmed with day-to-day implementation to devote the necessary time to developing strategic level relations within their own departments, let alone between departments or with the private sector. Self organization within industry has been equally deficient. Large multinational companies' share in the "business" of CNP is far too marginal as a percentage of the corporate bottom line to divert precious political capital from the pursuit of more profitable activities. Meanwhile small and medium sized enterprises whose bottom lines are more significantly impacted by fluctuations in government resources lack the necessary Washington representation to leverage their voices within federal agencies and on Capitol Hill. Lacking a true public-private partnership in implementing the CNP agenda, US efforts inevitably will be disorganized, inefficient, stove piped, and ultimately prove unsustainable once public funding evaporates. To date, the US government has spent approximately US\$12 billion on programs designed to manage the enduring threat posed by the Soviet Union's WMD legacy. The failure to realize enduring value from these significant investments would represent an appalling failure on the part of the US government, and present a potentially catastrophic blow to US national security in the form of rampant proliferation.

METHODOLOGY

The Stimson Center's Cooperative Nonproliferation Project worked to build new alliances between the federal government, NGOs, and the private sector. In finding common cause with these entities, we hope to not only highlight the

successes of CNP, but provide constructive ideas for reform to ensure these programs are able to meet and exceed targeted objectives in the former Soviet Union and beyond.

The primary goals of this study are to heighten understanding of the benefits of the nonproliferation programs, and to provide the United States with innovative solutions to complex proliferation challenges. Our research and analysis targeted the most immediate operational concerns of US agency program managers and their private sector counterparts, and intentionally excluded Russian policies or procedures from the list of “impediments.” This was done for several reasons, including internal resource constraints; however, the most important reason was to ensure that the findings and recommendations that flow from this research remain within the US Government’s purview to address, either by Congress or the Executive Branch. Although some of our recommendations will mention the importance of host country “buy-in” and addressing threat perceptions of FSU counterparts prior to initiating a new program activity, these are intended as admonitions to US policymakers and program managers regarding the necessity of building an appropriate foundation for implementation of programs and enhancing the prospects for sustainability. We conclude that the recommendations offered below are both politically feasible in Washington, and palatable to host governments abroad.

The Stimson Center implemented a two phase program of work to achieve our study goals: first, during an intense research phase, the project directors convened eighteen expert, off-the-record roundtables to examine obstacles to effective CNP implementation, and to identify mechanisms to remove these obstacles. Program managers at the Defense Threat Reduction Agency’s (DTRA) Cooperative Threat Reduction Directorate, the Department of Energy’s National Nuclear Security Administration (NNSA), and the International Security and Nonproliferation Bureau at the Department of State each

To date, the US government has spent approximately US\$12 billion on programs designed to manage the enduring threat posed by the Soviet Union’s WMD legacy.

The failure to realize enduring value from these significant investments would represent an appalling failure on the part of the US government, and present a potentially catastrophic blow to US national security in the form of rampant proliferation.

participated in brainstorming sessions with the Stimson Center's project directors.¹⁰ Additional roundtables brought together many contractors and subcontractors of DTRA and the Department of Energy (DoE), including the DoE National Laboratory counterparts to these efforts. Private companies representing the United States Industry Coalition (USIC) and principal investigators who received grants through the Civilian Research and Development Foundation (CRDF) were instrumental in expanding the network of private companies and individual scientists consulted. In addition, the directors conducted countless one-on-one interviews with both current and former government officials, members of the business community including representatives from several of the Cooperative Threat Reduction Integrating Contractors (CTRIC) to DTRA, representatives from foreign ministries who are themselves engaged in nonproliferation activities under the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, as well as American academicians, lawyers, and representatives from the non-governmental community of experts who closely monitor implementation of the CNP programs.

This monograph is the culmination of those discussions. This does not represent a consensus document among all of the various parties consulted in the course of our research. In all cases, the findings and recommendations were drawn by the authors and submitted back to participants to ensure accuracy and to elicit additional feedback. What follows are our substantive findings and recommendations that emerged from this process.

¹⁰ The BioIndustry Initiative and the Bio-Chem Redirect programs at the Department of State were the only US Government efforts which declined to participate in our study. Thus, the conclusions drawn regarding those programs are best estimates based upon discussions with the private sector, other government representatives, and publicly available information.

— 2 —

THE HISTORY OF COOPERATIVE NONPROLIFERATION

ASSESSING POST-COLD WAR THREATS: AMERICA'S SECURITY REVOLUTION

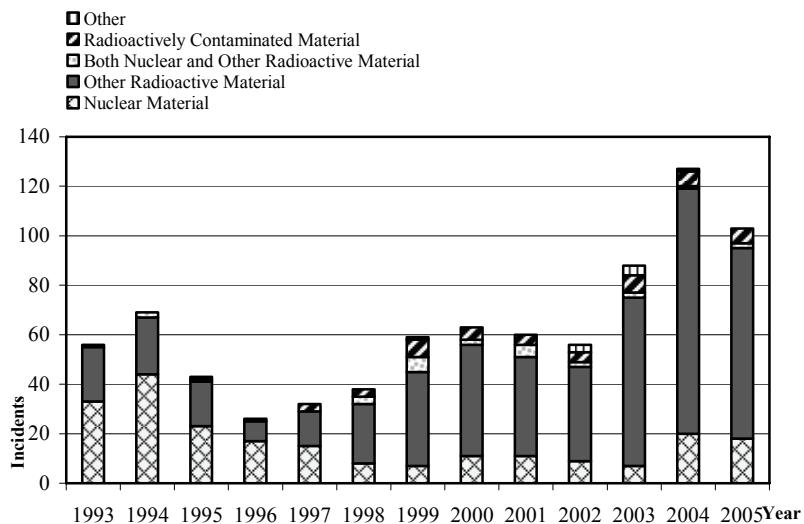
In December 1991, after four and a half decades of enmity with the West, the Soviet Union formally dissolved. As the world celebrated the end of the Cold War, a less palpable but no less dangerous threat emerged in place of overt hostilities. This heretofore unimaginined international security challenge was based not upon Soviet strength, but upon the weakness of states emerging from the Soviet Union's collapse. For forty years, the Soviet Union safely operated tens of thousands of nuclear weapons, experimented with hundreds of deadly pathogenic agents, and stockpiled tons of chemical weapons. Management of this massive weapons complex occurred within the context of a closed society with redundant security measures that prevented incursion by the outside world. The omnipresence of the KGB and the threat of harsh penalties made clandestine behavior among insiders unlikely.

But by the early 1990s, Russia and its former Soviet neighbors were left to deal with the legacy of massive nuclear, biological, and chemical weapons programs with a vastly diminished resource base. Moreover, Moscow's ability to exercise adequate command and control and prevent unauthorized access into its WMD complex became frequently challenged. Security measures designed to keep foreigners out were now inadequate as knowledge, materials, and weapons became products instantly marketable to terrorists and rogue states. As economic conditions throughout the FSU worsened in the early 1990s, stories of the personal hardships experienced by thousands of under- or unemployed WMD workers began surfacing. Desperate insiders and committed thieves and terrorists now had both the motivation and the wherewithal to steal or otherwise divert the necessary components for nuclear, biological, and chemical weapons—or even the weapons themselves. From 1991 to 1997, Russian GDP fell by almost forty percent (40%). In 1997, GDP grew by 0.8 percent, but this growth was obliterated by the 1998 crisis which crashed the ruble.¹¹ The

¹¹ William H. Cooper, "The Russian Financial Crisis: An Analysis of Trends, Causes, and Implications" (Washington: Congressional Research Service, 1999), accessed at: <<http://www.cnie.org/nle/crsreports/international/inter-16.cfm>>.

temptation to surreptitiously divert materials from within the weapons complexes for profit led to new fears of an incipient nuclear, biological, and chemical black market in the FSU. Potential proliferators recognized that only a small amount of fissile material was required to build a viable nuclear device—an amount small enough to fit into a can of Coca-Cola. From hundreds of excess strategic and tactical nuclear warheads and dozens of decaying nuclear submarines, to radioactive lakes and tens of thousands of unemployed nuclear and biological weapons scientists, the strain placed upon the fragile new governments of the FSU by virtue of their nuclear inheritance alone was overwhelming. While we do not know the exact dimensions of trafficking in fissile materials, evidence does suggest that inadequate security of these materials in the FSU presents a critical national security threat. The following graph is based on information from a database of illegal nuclear trafficking incidents maintained by the International Atomic Energy Agency and illustrates the vast array of recent smuggling attempts throughout the world (see Figure #3). Of the approximately twenty incidents involving weapons-grade uranium and plutonium, more than half occurred in former Warsaw Pact countries such as Russia, Georgia, Lithuania, Bulgaria, and the Czech Republic.

Figure 3: Confirmed Smuggling Incidents Globally: 1993-2005¹²



¹² Figures taken from: International Atomic Energy Agency, “Illicit Trafficking and Other Unauthorized Activities Involving Nuclear and Radioactive Materials: Fact Sheet,” IAEA Illicit Trafficking Database (August 2006), accessed at: <http://www.iaea.org/NewsCenter/Features/RadSources/PDF/fact_figures2005.pdf>.

During the Cold War, the United States and Soviet Union produced over 1,000 tons of nuclear material for civilian and military use, enough to build about 175,000 nuclear warheads. As a result of the Atoms for Peace program, significant quantities of this material were also dispersed to civilian facilities around the globe, including more than 130 research reactors in forty countries. Today, bomb-grade materials sit in civilian power and research reactors in countries like Iran, Vietnam, Jamaica, South Africa, and Turkey.¹³ Despite the obvious dangers, weapons-usable materials are sometimes protected with little more than a chain-link fence and a padlock. Even where rudimentary security measures are in place, the ease of circumvention has led to widespread diversion of sensitive materials. In the “Annual Report to Congress on the Safety and Security of Russian Nuclear Facilities and Military Forces” in December 2004, the National Intelligence Council concluded that, “undetected smuggling [of nuclear material] has occurred.”¹⁴ In addition, approximately 130,000 to 150,000 scientists, engineers, and technicians in the FSU alone were thought to possess the knowledge to contribute to the design and construction of an indigenous nuclear device.¹⁵ Lacking suitable employment, evidence of their migration to so-called “rogue states” became a significant global proliferation concern (see Box #1).

From hundreds of excess strategic and tactical nuclear warheads and dozens of decaying nuclear submarines, to radioactive lakes and tens of thousands of unemployed nuclear and biological weapons scientists, the strain placed upon the fragile new governments of the FSU by virtue of their nuclear inheritance alone was overwhelming.

¹³ United States Government Accountability Office, *Nuclear Nonproliferation: DOE Needs to Consider Options to Accelerate the Return of Weapons-Usable Uranium from Other Countries to the United States and Russia* (Washington: Government Accountability Office, 2004): 9, accessed at: <<http://www.gao.gov/new.items/d0557.pdf>>.

¹⁴ National Intelligence Council, “Annual Report to Congress on the Safety and Security of Russian Nuclear Facilities and Military Forces” (Washington: National Intelligence Council, December 2004), accessed at: <http://www.dni.gov/nic/PDF_GIF_otherprod/russiannuke04.pdf>.

¹⁵ These figures are based upon best estimates. It is not known whether Russian or US intelligence agencies have an adequate understanding of how many scientists, engineers, or technicians represent a brain drain proliferation threat. United Kingdom Department of Trade and Industry, “Closed Nuclear Cities Partnership,” *Energy: Environmental Issues*, accessed at: <<http://www.dti.gov.uk/energy/environment/soviet-nuclear-legacy/programme-portfolio/cncp/index.html>>; Matthew Bunn, “The Threat: The Threat in Russia and the Newly Independent States,” *Securing the Bomb* (Cambridge: Harvard University, 2002), accessed at: <http://www.nti.org/e_research/cnwm/threat/russia.asp>.

Box 1**ECONOMIC COLLAPSE AND THE LURE OF PROLIFERATION**

Sergei Kopylov was a metalworker at the Elektrostal Machine-Building Plant, a nuclear fuel production facility outside of Moscow that helped build propulsion systems for nuclear submarines while also specializing in missile production. Previously, he had comfortably supported his family, which included three children, with his modest salary. By 1993, that salary had not been paid for months.¹ With no other jobs available, inflation skyrocketing, and the welfare of his children in mind, he began to smuggle pellets of radioactive uranium dioxide out of the plant. By smuggling five kilograms of pellets at a time, Kopylov was able to amass 115 kilograms of uranium over a span of three years.² While trying to find a buyer for his stolen goods in 1996, Kopylov was caught. However, the judge, who felt sorry for Kopylov's plight, sentenced him to only four years in prison.³

Lowly technicians like Kopylov were not the only weapons specialists to be affected by the Soviet collapse. Dr. Igor Domaradsky was the director of the Obolensk State Research Center for Applied Microbiology. As a senior bioweapons scientist, he oversaw the development of especially virulent strains of anthrax and plague, among other diseases. Even an official of his stature felt the economic pressure brought on by the end of the Soviet weapons program. According to his memoir written in 1995, Dr. Domaradsky, while desperate for work, offered his services to the Chinese embassy in Moscow in 1992. When he received no reply from the Chinese, Dr. Domaradsky went to President Kirsan Ilyumzhin of the Kalmyk Republic (one of the member republics of the Russian Federation).⁴ Again Dr. Domaradsky's appeals for work were ignored. Fortunately, he was not able to spread his knowledge of biological weapons, but the incident shows that even the top specialists in the Soviet weapons program were susceptible to pressures to proliferate.

Those pressures also got to Nikolai Kislichkin, another weapons scientist at the massive former biological weapons facility at Obolensk. Under financial duress, Kislichkin started Bioeffekt Ltd. in Moscow. Through flyers, the company offered, by mail order, three especially virulent, genetically-engineered strains of tularemia that could be helpful for making vaccines.⁵ Of course, these strains could also be used as weapons. Kislichkin is just another example of Soviet specialists driven to questionable means to overcome financial hardship.

¹ Nuclear Threat Initiative, "NIS Trafficking: Gor I Chernomyrdin Pomogli Ostanovit Khishcheniya Urana," *Kommersant Daily*, Section 1, November 14, 1997, accessed at: <<http://www.nti.org/db/nistraff/1997/19971340.htm>>.

² Ibid.

³ Ibid.

⁴ Jonathon B. Tucker, "Bioweapons from Russia: Stemming the Flow," *Issues in Science and Technology Online* (Spring 1999), accessed at: <http://www.issues.org/15.3/p_tucker.htm>.

⁵ Ken Alibek, *Biohazard* (New York: Random House, 1999): 270-279.

Also at issue was the enduring threat from the massive Soviet biological weapons complex.¹⁶ Often referred to as the "poor man's atomic bomb,"

¹⁶ For a comprehensive overview of the former Soviet biological weapons complex see: Amy E. Smithson, *Toxic Archipelago: Preventing Proliferation from the former Soviet Chemical and*

biological agents are comparatively easy to obtain as they occur in nature, where they are readily accessible to determined proliferators. Over the course of decades, the Soviet Union weaponized thousands of tons of viruses, toxins, and bacteria including anthrax, smallpox, botulinum toxin, and the plague. With the disintegration of the USSR and its massive weapons program, the expertise and technology needed to manufacture these weapons became much more readily available. Today, the remnants of the once 65,000-employee strong Soviet biological weapons complex continue to pose serious proliferation challenges. According to one analysis, an ounce of type-A botulinum toxin, properly dispersed, could kill every man, woman, and child in North America. Just eight ounces could kill every living creature on the planet.¹⁷ Astonishingly, an accurate accounting of the astronomically large community throughout the FSU that was once responsible for researching and manufacturing inventive new ways to kill using biological pathogens has never been undertaken, leaving to question how much expertise has already proliferated out of the region and how many remain a proliferation threat. According to an account by the former Director of the Soviet biological weapons complex, recruiters from North Korea, Iran, Iraq, and elsewhere flooded the country to lure leading researchers out of the country with promises of a return to the affluent lifestyles of the past.

The Soviet Union also had the world's largest chemical weapons (CW) program, consisting of over 60 institutions spread across the USSR. According to a veteran of the Soviet chemical weapons program, the USSR also developed and produced "tens of tons of a few novel chemical nerve agents that are five to ten times more lethal than any other known chemicals."¹⁸ Russia still possesses the largest declared CW stockpile with approximately 40,000 tons of agent stored at seven sites. As of 2006, it had destroyed about 3% of its stockpile. Similar to the legacy expertise threat surrounding the Soviet biological weapons program, the break up of the Soviet Union left thousands of chemical weapons scientists without jobs, contributing to the larger "brain drain" challenge posed by the under-employment, poor working conditions, and lack of peaceful, commercial opportunities for former WMD scientists in the region. The diversion of weapons, materials and the know-how to build them by a terrorist group could have serious security implications. In 1995, for instance, a previously obscure group, *Aum Shinrikyo*, achieved infamy when some of its members released

Biological Weapons Complex (Washington: The Henry L. Stimson Center, 1999), accessed at: <<http://www.stimson.org/cbw/pdf/toxicarch.pdf>>.

¹⁷ Ron Purver, "The Threat of Chemical and Biological Terrorism," *The Monitor: Nonproliferation, Demilitarisation, and Arms Control* 3, no. 2 (1997): 5. See also Neil C. Livingstone and Joseph D. Douglass, Jr., *CBW: The Poor Man's Atomic Bomb* (Cambridge: Institute for Foreign Policy Analysis, 1984); and Robert H. Kupperman and David M. Smith, "Coping with Biological Terrorism," *Biological Weapons: Weapons of the Future?* Brad Roberts, ed. (Washington: Center for Strategic and International Studies, 1993): 35-46.

¹⁸ Amy Smithson, *Toxic Archipelago* (1999): 9.

sarin nerve gas into the Tokyo subway system. The attack killed twelve people and sent more than 5,000 others to hospitals. Had *Aum* released sarin of military potency, the death toll from this incident would have been exponentially greater.

The confluence of deteriorating economic conditions, lax security standards, and the rise of global terrorism led many to conclude that the age of relative stability fostered by the superpower stand-off had ended and that a new era of proliferation, in which possession of weapons of mass destruction by countries in conflict-prone regions around the world was not only possible, but probable, had begun. Post-Cold War euphoria gave way to a sense of impending doom. Up to eighteen states were often named as possessing either the capability or the ambition to build nuclear weapons, including the usual suspects such as Egypt, Syria, Iraq, and Iran, and less obvious candidates like Yugoslavia, Nigeria, and Mexico. While those pessimistic projections have proven wrong, the threats associated with the diffusion of nuclear, biological, or chemical weapons technology today emanate from more sources worldwide than ever before (see Figure #4).

In the past decade, Pakistan and India have designed, built, and tested indigenous nuclear devices. Political instability in the region and a hot demand for nuclear technology leave doubts over those states' ability to exercise sufficient command and control of their nuclear infrastructure to prevent theft or diversion. The Stalinist regime in North Korea exposed the central weakness of the global nonproliferation regime by covertly working toward an offensive nuclear capability and ultimately withdrawing from the 1968 Nuclear Nonproliferation Treaty (NPT) when it reached the point of apparent operational capability. In February 2005, the North Korean Foreign Ministry issued a statement declaring that Pyongyang now possessed nuclear weapons.¹⁹ By October of 2006, Pyongyang had tested its first nuclear weapon. Though the ramifications of this test are not yet known, analysts worry that a new arms race could spread through South Korea, Japan, Taiwan, China, and beyond.

Also in 2005, Iran elected conservative nationalist Mahmoud Ahmadinejad as President. After several months of threatening to do so, Iran restarted its uranium enrichment program and seemingly resumed development of what some charge is an offensive nuclear capability in February 2006.

¹⁹ Paul Koring, "North Korea Boasts Of Making Nuclear Weapons," *The Globe and Mail*, Section A, February 11, 2005.

Figure 4: Weapons of Mass Destruction Programs by Country²⁰

Country	Nuclear Weapons Capability	Biological Weapons Capability	Chemical Weapons Capability
Algeria	×	Research?	Suspected
China	Declared (NPT)	Likely	Has Had
Cuba	×	Reported	Suspected
Egypt	Ended	Known R&D	Likely
Ethiopia	×	×	Suspected?
France	Declared (NPT)	Ended	Ended
India	Declared (non-NPT)	×	Has Had
Indonesia	×	×	Sought
Iran	Seeking	Likely	Has Had
Iraq	Ended	Ended	Ended
Israel	Undeclared (non-NPT)	Likely R&D	Likely
Japan	×	Ended	Ended
Kazakhstan	Ended (Soviet Legacy)	Soviet Legacy	Suspected
Libya	Ended	Ended	Ended
Myanmar	×	×	Suspected
North Korea	Declared (non-NPT)	Likely	Known
Pakistan	Declared (non-NPT)	×	Likely
Russia	Declared (NPT)	Declared	Known
Saudi Arabia	×	×	Suspected
Serbia	×	Suspected	Known
South Africa	Ended	Ended	Suspected
South Korea	Ended	×	Suspected
Sudan	×	×	Suspected
Syria	×	Research	Known
Taiwan	Ended	Research?	Likely
United Kingdom	Declared (NPT)	Ended	Ended
United States	Declared (NPT)	Ended	Known
Uzbekistan	Ended (Soviet Legacy)	Soviet Legacy	×
Vietnam	×	×	Likely

× indicates no known program

²⁰ Sharon A. Squassoni, “Nuclear, Biological, and Chemical Weapons and Missiles: Status and Trends,” (Washington: Congressional Research Service, 2005): 12, accessed at: <<http://www.fas.org/sgp/crs/nuke/RL30699.pdf>>; Center for Nonproliferation Studies, “Chemical and Biological Weapons: Possession and Programs Past and Present,” Monterey Institute for International Studies (April, 9 2002), accessed at: <<http://cis.miis.edu/research/cbw/possess.htm>>; and Nuclear Threat Initiative, “Country Profiles” (2006), accessed at: <http://www.nti.org/e_research/profiles/index.html>.

On April 11, 2006, President Ahmadinejad declared that Iran had succeeded in enriching uranium to high levels, and called for the industrialization of the process to begin within the year.²¹ The next month, the Iranian parliament threatened to follow North Korea and withdraw from the NPT.²² These developments, when combined with the failure of the most recent NPT Review Conference in New York, highlight the limitations of the existing nuclear nonproliferation regime in preventing determined states parties from “going nuclear.”

Such state-based challenges are compounded by the rising threat of global terrorism, and a widening diffusion of illicit technologies. While the nuclear secret was closely held throughout the Cold War, the technology and know-how for weapons development today is readily available to any determined buyer. Pakistani scientist Abdul Qadeer (AQ) Khan played a major role in this proliferation. His black market network in nuclear technologies spanned the globe and provided one-stop shopping for an as yet unknown number of customers, including North Korea, Iran, and Libya, for well over a decade.

The terrorist attacks against the United States on September 11, 2001, demonstrated the urgent need to prevent the even greater tragedies that nuclear, biological, or chemical terrorism could yield. Individuals or small groups can now obtain the destructive power previously restricted to states and cannot be deterred by traditional threats of retaliation. One month after 9/11, the US Government received intelligence that *al Qaeda* had smuggled a 10-kiloton nuclear warhead into New York City. Placed in lower Manhattan, such a device would kill up to 500,000 people, seriously injure tens of thousands more, cause over US\$1 trillion in economic damage, and render the entire area uninhabitable for decades to come.²³ Osama bin Laden has declared the acquisition of weapons of mass destruction a "religious duty"; and in November of 2001, an *al Qaeda* spokesman boasted that the terrorist group had acquired Russian "briefcase" nuclear weapons on the black market.²⁴ Although it is unclear whether *al Qaeda* actually has the briefcase devices, one thing is certain: acquiring and using a weapon of mass destruction is its intent.

²¹ Karl Vick and Dafna Linzer, “Iran Declares Nuclear Advance,” *The Washington Post*, Section A, April 12, 2006.

²² Nuclear Threat Initiative, “Iran Warns of Possible Nuclear Treaty Withdrawal,” *Global Security Newswire* May 8, 2006, accessed at: <http://www.nti.org/d_newswire/issues/2006_5_8.html>.

²³ Massimo Calabresi and Romesh Ratnesar, “Can We Stop the Next Attack?” *Time* March 2002, accessed at: <<http://www.time.com/time/covers/1101020311/story.html>>; Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe* (New York: Times Books, 2004): 1-8.

²⁴ For a report on claims made by bin Laden's deputy, Ayman al-Zawahri, see, “Journalist Says al-Qaeda Has Black Market Nuclear Bombs,” *Sydney Morning Herald* March 22, 2004, accessed at: <<http://www.informationclearinghouse.info/article5915.htm>>.

These rapidly evolving challenges around the globe in the last decade of the twentieth century gave rise to a new security logic. Reflected in the “homeland security” debate, counterproliferation strategies, and an unabashed policy of preemption following the election of George W. Bush, American policymakers repositioned proliferation as a strategic issue of the highest order. Policies ultimately catalyzed by September 11th produced a fundamental reordering of budgetary and institutional alignments to combat global weapons diffusion.

The fear that a growing number of states and terrorist organizations are bent on waging violent anti-Western campaigns spurred the United States to develop and deploy a wide range of new countermeasures to protect American territory and overseas interests—including missile defenses to guard against rogue attacks, long-range precision strike forces to eliminate burgeoning threats, and intelligence resources and operations to detect and disrupt illicit movements of technologies and materials. Domestically, law enforcement officers, health care providers, and newly formed local emergency response agencies have been given a mandate to help defend America from the global threat of proliferation. Almost universally, federal, state and local agencies have been tapped to serve on the “front lines of the war on terror.” Despite the efficacy of some measures in this mix, the US Government has consistently failed to effectively organize and prioritize its efforts to address terrorism.

Two years *before* the September 11 attacks, a bipartisan commission authorized by Congress concluded that the United States Government was not effectively organized to combat proliferation. The Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, otherwise known as the Deutch Commission, counted 96 separate federal agencies charged with supporting national efforts to combat or otherwise respond to the proliferation of weapons of mass destruction.²⁵ In response, the Commission called for enhanced central direction and coordination as well as integrated planning and budgeting of resources over efforts to combat the spread of weapons and technology around the globe. The Commission’s recommendations were virtually ignored and most were never implemented. Thirty-four months *after* those attacks, the final report of the National Commission on Terrorist Attacks Upon the United States—the 9/11 Commission—reported that the US Government again had failed to adequately address the threats posed by weapons of mass destruction and that bureaucratic dysfunction remained a central concern.²⁶ A survey of current US national

²⁵ Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction (Deutch Commission), *Combating Proliferation of Weapons of Mass Destruction* (Washington: Deutch Commission, 1999).

²⁶ 9/11 Public Discourse Project, “Final Report on 9/11 Commission Recommendations” (2005).

security spending on anti-proliferation efforts reveals a plethora of programs spread across multiple agencies including several offices within the White House and across the intelligence community, the Departments of State, Defense, Homeland Security, and Energy, as well as the Departments of Justice, Commerce, Treasury, Health and Human Services, and Agriculture (see Figure #5).

Echoing the conclusion of the Deutch Commission, the 9/11 Commission proffered three interconnected efforts requiring increased attention:

- Strengthening global counterproliferation efforts;
- Expanding the Proliferation Security Initiative; and, significantly,
- Supporting the CNP agenda by expanding efforts, improving existing programs, and increasing available resources.²⁷

But despite their proven effectiveness and repeated calls for a fundamental reevaluation of government-wide priorities and spending, CNP remains the poor stepchild of an aggressive new posture to detect, deter, and combat the proliferation and use of nuclear, biological, chemical, and radiological weapons. Evaluating the US Government's progress in implementing its recommendations four years after the deadly attacks of September 11th, the bipartisan 9/11 Commission concluded that the President had failed to expend maximum effort on preventing terrorists from obtaining weapons of mass destruction.²⁸ It also concluded that the agency stovepipes which contributed to the failure to anticipate the 9/11 attacks remained.

RESPONDING TO GLOBAL THREATS: COOPERATIVE NONPROLIFERATION AS THE FIRST LINE OF DEFENSE

In August of 1991, Soviet hardliners, dissatisfied with the reforms of the Gorbachev government, launched a coup attempt while the President vacationed on the Black Sea. For three days, the world watched and contemplated the implications of a breakdown in the custody and control of the world's largest arsenal of atomic weapons. While ultimately unsuccessful in overthrowing the government, the coup attempt awakened the international community to the growing fissures within the Soviet empire and the potentially catastrophic consequences of a failure of command and control. Concluding that the

²⁷ The National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report*, (New York: W.W. Norton & Company, 2004): 380-381.

²⁸ 9/11 Public Discourse Project, "Final Report on 9/11 Commission Recommendations" (2005).

FIGURE 5

FIGURE 5 continued

traditional tools of arms control and the myriad other counterproliferation efforts operated by the US Government remained necessary but ultimately insufficient instruments to stem the outflow of weapons, materials, technology and expertise out of the FSU, Senators Sam Nunn (D-GA) and Richard Lugar (R-IN), impelled by the NGO community, authored the *Soviet Nuclear Threat Reduction Act of 1991*. Developed as an emergency response to the impending collapse of the Soviet Union which officially occurred only weeks later, this Act gave rise to a bilateral government effort called the Cooperative Threat Reduction program. Known colloquially as the Nunn-Lugar program, its mission would gradually evolve from an emergency effort led by the Department of Defense to secure and destroy excess Soviet nuclear weapons, into a broader, multi-department attempt to keep weapons of mass destruction, the materials to build them, and the talent behind them out of the hands of hostile states and terrorist organizations.

When Senators Nunn and Lugar first envisaged the CTR program, the primary focus was on securing and destroying nuclear weapons and their delivery vehicles in the territories of the former Soviet Union. The enacted provisions authorized a program in the Soviet successor states designed to “(1) destroy nuclear weapons, chemical weapons, and other weapons, (2) transport, store, disable, and safeguard weapons in connection with their destruction, and (3) establish verifiable safeguards against the proliferation of such weapons.”²⁹ Thus, beginning in 1991 the United States and Russia launched a multilateral initiative to cooperatively denuclearize Belarus, Kazakhstan, and Ukraine and to disassemble strategic warheads deemed excess to Russian security and slated for destruction under existing bilateral treaties. Lacking a separate appropriation, initial funding for CTR was diverted from other Department of Defense projects. This disjointed effort made overarching CTR policy and budgetary decisions nearly impossible, as almost all funding came on an *ad hoc* basis. Lacking a line item within the budget also set up an internal competition for dollars within the Department of Defense that would hobble the reputation, implementation, and effectiveness of the program from the start. Furthermore, the need to negotiate several umbrella agreements with

The dividends of this laborious new cooperation soon became evident. Cold War hardware representing decades of military spending were isolated, secured, and eliminated for a fraction of earlier investments.

²⁹ US Congress, *Conventional Forces in Europe Treaty Implementation Act of 1991*, Title II, Section 211 (January 1991), accessed at: <<http://thomas.loc.gov/cgi-bin/bdquery/z?d102:h.r.03807>>.

FSU states, lingering Cold War hostility and mistrust, a lack of coordination within the US Government, and continued Russian secrecy about its weapons programs made bilateral CTR collaboration arduous.³⁰ Regardless, the dividends of this laborious new cooperation soon became evident. Cold War hardware representing decades of military spending were isolated, secured, and eliminated for a fraction of earlier investments. As the need for a more organized, long-term effort became apparent in 1993—two fiscal years into the effort—CTR was granted its own line in the Department of Defense budget, meaning funds no longer had to come piecemeal from other programs. With a dedicated CTR budget, the Department of Defense was able to take a more systematic approach to program implementation.

Early success brought other Members of Congress to the conclusion that existing efforts to manage the full spectrum of threats arising from the collapse of the Soviet Union were far too narrow. For Cooperative Nonproliferation efforts to succeed in the long run, a broader concept of the threat posed by all manner of Soviet weapons, materials, and expertise needed to be applied. In 1992, the *Freedom for Russia and Emerging Eurasian Democracies and Open Markets Support Act* (FREEDOM Support Act) helped to expand the traditional rubric of arms control by promoting new efforts to “prevent [the] diversion of weapons-related scientific expertise of the former Soviet Union to terrorist groups or third countries.”³¹ The addition of this third category of threats was critical to addressing the full spectrum of issues related to the proliferation of nuclear, biological, and chemical weapons.

The sea change for CTR occurred with the passage of the *National Defense Authorization Act for Fiscal Year 1997*, which finally brought the terrorist threat to the forefront of CTR planning by spotlighting both domestic preparedness and a greater concentration on WMD material security.³² Title XIV of that law, known as the Nunn-Lugar-Domenici Act, greatly expanded the scope of Cooperative Nonproliferation programs. Fissile material and biological pathogens remained an open target for terrorists interested in acquiring a weapon of mass destruction without going to the trouble of stealing a nuclear weapon or acquiring first-hand bioweapons expertise. To counter these threats, the Act strengthened the role of the Department of Energy in nonproliferation

³⁰ Amy F. Woolf, “Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union,” (Washington: Congressional Research Service, April 6, 2006): 5, accessed at: <<http://fpc.state.gov/documents/organization/66455.pdf>>.

³¹ US Congress. *Freedom for Russia and Emerging Eurasian Democracies and Open Markets Support Act*, Title V, Section 501 (January 1992), accessed at: <<http://thomas.loc.gov/cgi-bin/bdquery/z?d102:s.02532>>.

³² US Congress, *National Defense Authorization Act for Fiscal Year 1997*, Title XIV, Section 1402, and Title XV, Section 1501 (January 2006), accessed at: <<http://thomas.loc.gov/cgi-bin/bdquery/z?d104:h.r.03230>>.

efforts by adopting programs such as the Elimination of Weapons-Grade Plutonium Production (EWGPP) effort and a variety of border security measures. Additionally, the legislation prompted the development of new efforts to address the long-neglected threats posed by biological and chemical weapons and further mandated the appointment of a National Coordinator on Nonproliferation. The focus on terrorism and materials was further reinforced by the Baker-Cutler Task Force Report which, in early 2001, declared the theft of WMD materials from Russia and their use in the US as “the most urgent unmet national security threat to the United States.”³³ That report further concluded that current nonproliferation programs, while achieving impressive results, were ultimately unable to fully address the threat due to limited mandates and funding.

Contemporary understandings of the threat posed by nuclear, biological, and chemical materials and weapons have been expanded beyond both dedicated military facilities and the former Soviet Union. CNP specialists now see nuclear material, specifically HEU, in research reactors as a proliferation threat that must be dealt with under CNP initiatives, giving rise to the Energy Department’s Global Threat Reduction Initiative.³⁴ In addition, young scientists the world over with modern laboratory skills and access to biological materials who harbor strong financial ambitions pose a potential new source of proliferation concern. In light of these evolving threats and perceptions, Congress enacted the “Nunn-Lugar Expansion Act” in the *National Defense Authorization Act for Fiscal Year 2004* (Section 1308), to allow the Pentagon’s efforts to operate outside of the borders of the former Soviet Union.³⁵ Despite growing recognition of the global dimension of these threats and intermittent attempts to expand certain programs, CNP efforts remain largely under-funded

Young scientists the world over with modern laboratory skills and access to biological materials who harbor strong financial ambitions pose a potential new source of proliferation concern.

³³ Secretary of Energy Advisory Board, *A Report Card on the Department of Energy’s Nonproliferation Programs with Russia* (Washington: US Department of Energy, 2001): iii, accessed at: <<http://www.seab.energy.gov/publications/rusrpt.pdf>>.

³⁴ Philipp Bleek, “Global Cleanout of Civil Nuclear Material: SGP Issue Brief #4,” *Strengthening the Global Partnership Project* (Washington: Center for Strategic and International Studies, 2005), accessed at:

<<http://www.sgpproject.org/publications/SGPIssueBrief/SGP%20Issue%20Brief%20Bleek.pdf>>.

³⁵ Sharon Squassoni, “Globalizing Cooperative Threat Reduction: A Survey of Options” (Washington: Congressional Research Service, 2004), accessed at: <<http://www.fas.org/spp/starwars/crs/RL32359.pdf>>.

and underappreciated as the first line of defense in the US anti-proliferation strategy.

— 3 —

A STRUCTURAL OVERVIEW OF THE COOPERATIVE NONPROLIFERATION PROGRAMS

THE ROLE OF THE EXECUTIVE AGENCIES

The events of September 11th hastened a new foreign policy awareness within the public to the threats of global terrorism, as well as a dramatic surge in the US Government's efforts to combat those threats. Additional funding made available to address the threat of proliferation touched off a scramble across multiple government agencies to develop in-house counterproliferation programs. How that internal struggle has played out has had direct implications for policy output. As one scholar of government puts it succinctly, "It matters who has the information, who has the jurisdiction, [and] who has the last word."³⁶ It has had an equally significant impact on the relative importance afforded CNP programs within the various Executive agencies. More importantly, the organizational structures and processes that support the Departments of Defense, Energy, and State have had a substantial impact on the internal implementation and achievement of US nonproliferation objectives. What follows is a brief summary of how these Executive agencies differ in their composition and how organizational decisions made at their outset influence, both positively and negatively, their performance today. This evaluation is provided as background and context for the recommendations that follow. In several instances, the findings and recommendations flow directly from some aspect of the structural advantages and limitations that exist at each of the agencies.

(i) The Department of Defense

Today, the Department of Defense operates a wide spectrum of Cooperative Threat Reduction programs to assist FSU states to dismantle WMD and their infrastructure, to consolidate and secure WMD and related technology, and to promote transparency and an effective security culture, as well as to support

³⁶ Amy Zegart, *Flawed by Design: The Evolution of the CIA, JCS, and NSC* (Palo Alto: Stanford University Press, 1999).

military-to-military cooperation to enhance nonproliferation objectives. The full suite of DoD activities includes the following:³⁷

- the **Strategic Offensive Arms Elimination (SOAE)** program which oversees the destruction of strategic weapons delivery systems, such as intercontinental ballistic missiles (ICBMs), ICBM silo launchers, and strategic nuclear submarines;

Program	FY 2005	FY 2006	FY 2007
Strategic Offensive Arms Elimination	US\$52,495,000	US\$62,688,000	US\$76,985,000

- the **Nuclear Weapons Storage Security (NWSS)** program which provides safety and security enhancements at warhead storage sites, supplies equipment to develop an automated inventory control system, and trains Russian security personnel to defend warhead storage sites;

Program	FY 2005	FY 2006	FY 2007
Nuclear Weapons Storage Security	US\$73,899,000	US\$84,100,000	US\$87,100,000

- the **Nuclear Weapons Transportation Security** program which offers security assistance to bring deployed warheads to secure storage sites while enhancing the safety and security of Russia's nuclear railway transportation system;

Program	FY 2005	FY 2006	FY 2007
Nuclear Weapons Transportation Security	US\$26,300,000	US\$30,000,000	US\$33,000,000

- the **Chemical Weapons Destruction** program which is charged with building a nerve agent destruction facility in Shchuch'ye (nearing completion) and helping dismantle old chemical weapons production facilities;

Program	FY 2005	FY 2006	FY 2007
Chemical Weapons Destruction	US\$157,875,000	US\$108,500,000	US\$42,700,000

³⁷ For further information on DoD CTR programs, please see: <<http://www.stimson.org/cnp>>.

- the **Biological Threat Reduction Program (BTRP)** which consolidates, secures, and eliminates dangerous pathogen stocks, destroys biological weapons infrastructure, redirects bioweapons experts into sustainable, civilian employment, and creates a local infrastructure to detect and respond to threat agents throughout the FSU;

Program	FY 2005	FY 2006	FY 2007
Biological Threat Reduction Program	US\$68,699,000	US\$60,849,000	US\$68,357,000

- the **Weapons of Mass Destruction Proliferation Prevention Initiative** which provides training and equipment for land border and maritime security in Ukraine, Kazakhstan, Uzbekistan, Azerbaijan, and Moldova in order to reduce the risk of nuclear smuggling;

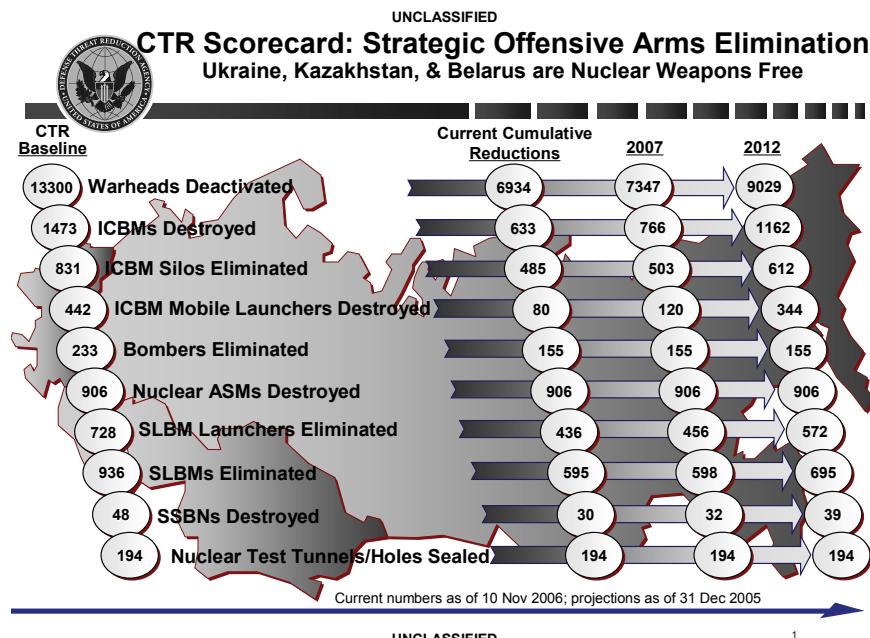
Program	FY 2005	FY 2006	FY 2007
Weapons of Mass Destruction Proliferation Prevention	US\$36,700,000	US\$40,600,000	US\$37,486,000

- the **Defense and Military Contacts** effort which aids nonproliferation cooperation by facilitating high-level defense visits and specialist exchanges with the United States.

Program	FY 2005	FY 2006	FY 2007
Defense and Military Contacts	US\$7,963,000	US\$8,000,000	US\$8,000,000

A decade and a half of effort by both the United States and the collaborating states of the former Soviet Union has yielded an astonishing array of successes. Throughout the Cold War, the United States Government expended more than an estimated US\$5 trillion on its nuclear program in order to counter the Soviet threat.³⁸ In just fifteen years, and with a fraction of that investment, the DoD CTR Directorate's record of weapons elimination has been astonishing (see Figure #6).

³⁸ Stephen I. Schwartz, *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons Since 1940* (Washington: The Brookings Institution, 1998).

Figure 6: Cooperative Threat Reduction Scorecard

Source: Defense Threat Reduction Agency

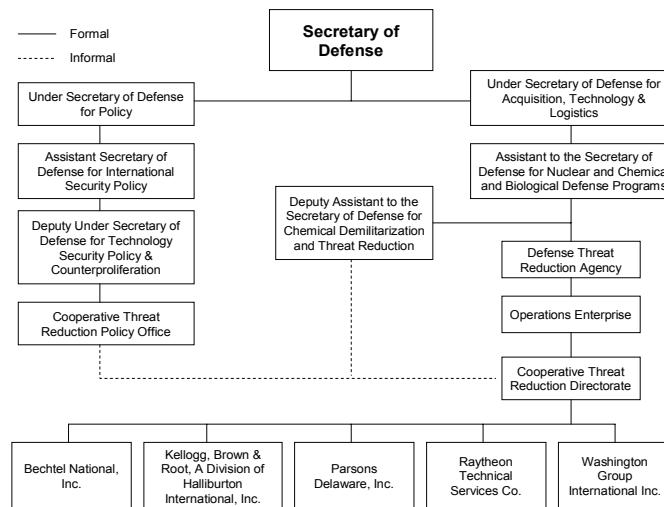
Implementing Structure

Policy direction for Cooperative Threat Reduction programs emanates from the Office of the Under Secretary for Policy (USD(P)). Within USD(P) alone, several offices and different levels in the hierarchy exist in the policy formulation and consultation process.³⁹ Once policy is set by USD(P), directives filter down through the various offices and are tasked to the Defense Threat Reduction Agency (DTRA) where they ultimately end up with the CTR

³⁹ A DoD Office of the Inspector General report from February 5, 2004, investigated in detail the “Management Structure of the Cooperative Threat Reduction Program.” This report recommended clarification of the “strategic planning and other responsibilities and coordination requirements” of the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs). It also recommended renaming the Assistant Secretary of Defense (Strategy and Threat Reduction) to the Assistant Secretary of Defense (International Security Policy) and clarifying the chain-of-command for threat reduction matters. In addition, the Inspector General’s report recommended that DoD clarify the Defense Threat Reduction Agency’s responsibilities and coordination requirements for CTR. Lastly, the report pointed to shortfalls in qualified staffing for effective oversight and implementation and suggested that DoD needed to make a determination regarding the number and specific qualification for staff and then fill the positions. It appears that only one of these recommendations has been fully implemented, namely, the change in office name from ASD(S&TR) to ASD(ISP). The others appear to only have been partially implemented or ignored. See Department of Defense Inspector General, “Cooperative Threat Reduction: Management Structure of the Cooperative Threat Reduction Program (D-2004-050)” (February 5, 2004).

Directorate.⁴⁰ Within that Directorate, program managers responsible for efforts within the nuclear, biological, or chemical areas of activities must then translate USD(P)'s policy direction into a task order designed to achieve the specific policy objective. The Directorate then selects one of its five integrating contractors to implement the activity or task.

Figure 7: Department of Defense Management Structure for the Cooperative Threat Reduction Program⁴¹



As the pioneer of Cooperative Nonproliferation, the Defense Department deserves much credit for both its ingenuity and historical commitment to these programs. Program managers have been responsive to evolving security challenges at both the strategic level and the tactical/program implementation level. For instance, over time as needs have evolved on the ground in the region, managers have shifted from a so-called “Toys-R-Us” model mandated by Congress where critical equipment was simply provided to host states in need, to a more nuanced set of programs designed to dismantle legacy facilities and

⁴⁰ The Under Secretary for Defense for Acquisition, Technology and Logistics and the Under Secretary of Defense for Policy each have oversight duties for the CTR Program. The CTR Directorate falls under the direct authority of the Under Secretary of Defense for Acquisition, Technology and Logistics, which exercises authority and control over the Director of the Defense Threat Reduction Agency through the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs) and determines CTR acquisition policy. *Ibid.*, 1-3.

⁴¹ Government Accountability Office, *Cooperative Threat Reduction: DOD Has Improved Its Management Structure and Internal Controls, but Challenges Remain*, Report to Congressional Committees (Washington: GAO, June 2005), accessed at: <http://www.gao.gov/new.items/d05329.pdf>.

provide new or upgraded infrastructure to host states. More recently, an additional function has been introduced as the CTR Directorate works to achieve long-term program sustainability through extensive training focused on capacity building within the host nations.

Early CTR programming was dominated by large scale construction and destruction efforts. In an attempt to promote efficiencies and move as expeditiously as possible in the face of a serious threat to national security, five large firms—the Cooperative Threat Reduction Integrating Contractors or CTRIC—were identified in September 2001 and given exclusive rights to bid on DTRA CTR contracts. Today, CTRIC includes: Bechtel National Inc., Kellogg, Brown and Root, Parsons Delaware Inc., Washington Group International Inc., and Raytheon Technical Services Company. At that time, the total value of the five Cooperative Threat Reduction integrating contracts was estimated at US\$5 billion.⁴² The CTR Directorate entered into so-called “Indefinite Delivery/Indefinite Quantity” or ID/IQ contracts with these five prime contractors who, with their teams of supporting subcontractors, perform the majority of CTR efforts in the FSU. At their outset, these five contractors provided DoD with a responsive and rapid means of accomplishing the goals of the CTR Program.

In fiscal years 2002 and 2003, DTRA awarded 32 task orders under the integrating contracts worth approximately US\$415.8 million. These task orders required such deliverables as building or improving transportation infrastructure including roads and railbeds, constructing buildings, destroying weapons, and cleaning up destruction sites. Today, because of changing needs on the ground in the host states requiring more nuanced “capacity building,” these prime contractors rely upon their subcontractors for actual implementation of the projects at an ever-increasing rate. Fewer large construction and destruction projects mean that a growing portion of CTR contracts and activities fall outside of the immediate bailiwick of these large firms. Moreover, smaller companies are much more apt to bid on relatively low-priced contracts than are the existing CTRIC partners.

⁴² Department of Defense Inspector General, “Audit: Contracts Awarded by the Defense Threat Reduction Agency in Support of the Cooperative Threat Reduction Program” (August 25, 2004) accessed at: <<http://www.dodig.osd.mil/audit/reports/fy04/0411sum.htm>>.

Political Attention

If organizational capacity matters, what drives the bureaucracy is sustained, high-level political attention, and what feeds it is budgetary prioritization. An ongoing challenge for both government officials and their private sector counterparts has been the minuscule proportion of the DoD budget that CTR programming occupies. With annual non-emergency appropriations of over US\$400 million, Cooperative Threat Reduction represents just 0.08% of Pentagon spending.⁴³ Furthermore, it is believed that topline budgets for CTR will drop precipitously over the next several years as large projects such as the Shchuch'ye chemical weapons destruction facility are completed.⁴⁴ These minimalist budgets, irrespective of whether or not they are scaled to address the threat, have reinforced the anemic political attention paid to the CTR program. Indeed, with the exception of the vociferous debate at their inception, these efforts seldom receive high-level attention within the Pentagon. Without such support, responsibility for promoting these programs within the US Government, and championing them with host-country counterparts, falls to committed but politically less potent civil servants within USD(P), leadership within the CTR Directorate, program managers far down in the Pentagon's hierarchy, or to DoD private sector contractors. The implications of this far transcend budgetary enfeeblement. Without high level political backing at program inception, these individual program managers negotiate with the host state from a position of weakness. The terms of program execution are not therefore weighted in favor of the United States. Although devolution of authority down to this level can hasten innovation, without an effective feedback mechanism and adequate leadership there exists an inability to develop lessons learned and sufficiently evolve programs to meet changing requirements.

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⁴³ The total amount appropriated for Defense Department spending in fiscal year 2006 was US\$470.2 billion; of that, US\$415 million (0.0837%) was allocated for Cooperative Threat Reduction efforts. The fiscal year 2007 request included US\$439.5 billion for the Defense Department, with US\$372.2 million for overseas CTR activities (0.0847%).

⁴⁴ The US portion of the Chemical Weapons Destruction Facility (CWDF) complex is scheduled for completion and transfer to Russian authority in September 2008. See Defense Threat Reduction Agency, "Cooperative Threat Reduction: Programs: Chemical Weapons Destruction (CWD) – Russia," accessed at: <<http://www.dtra.mil/oe/ctr/programs/cwd/index.cfm>>.

Building Trust

At the end of the Cold War, CTR was touted as a concrete example of the new, peaceful relationship burgeoning between the US and the states of the former Soviet Union. Successful implementation of the CTR agenda has always been predicated on the principle of trust between all parties. More often than not, the intense degree of confidence critical for successful execution of projects has

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been fostered and driven by personal relationships between American officials and their host country counterparts. In the main, when program implementation has relied upon this tactical level engagement between mutually respectful parties to achieve a jointly agreed upon goal, threat reduction has flourished. But, while tactical level interactions have generally remained positive, and despite monumental successes over

the course of the last fifteen years, the Department of Defense programs, particularly those with Russia, continue to be dogged by a strategic level legacy of mutual suspicion. The inability of many political leaders in both countries to move beyond Cold War hostilities has left certain CTR efforts embroiled in political controversy in spite of tactical success. Moreover, the degree of mistrust vis-à-vis Pentagon-initiated efforts involving Russia's closely held Cold War WMD secrets is, at times, exacerbated by a lack of continuity in the persons representing the US Government in DoD directed efforts. A handful of government officials at USD(P) and the Cooperative Threat Reduction Directorate have been present since the advent of these programs and have therefore built the trust necessary to move the programs forward aggressively. However, ongoing government personnel rotation is compounded by DoD's piecemeal contracting of implementation to actors in the private sector. The result has been the near continuous rotation among the actors involved in the day-to-day implementation of US efforts on the ground. When this occurs, strategic level suspicions compound the lack of personal relations and can derail tactical level implementation of the programs.

Political suspicions cannot be legislated away. However, the character of these programs, based as they are upon interpersonal relationships, leaves them vulnerable to deliberate subterfuge from above. Without continuity in program management personnel, trust cannot be built and sustained, and the threat reduction agenda suffers. Finally, because CTR programs have traditionally been overlooked by the senior-most management within the Department of

Defense, the Pentagon's efforts have, at times, fallen prey to overly cautious, or even hostile personalities within the Department. Such episodes have generated self-imposed impediments to achieving the desired nonproliferation objectives and have exacerbated preexisting tensions between the Defense Department and other US Government agencies working toward similar objectives.

Local Representation

Early CTR efforts were often perceived by host states as “intelligence tourism” operations where US agencies were systematically permitted to deconstruct Russia’s offensive and defensive capabilities as a spoil of their Cold War victory. This one-sided relationship, with its inherent lack of reciprocity, saddled these programs with a lack of trust by default and therefore, a shaky foundation upon which to build what was necessarily a collaborative enterprise. Programs have succeeded to a significant degree in spite of an often hostile local environment. DTRA program managers have long recognized the importance of mutual trust and respect in the successful implementation of these programs. One recent innovation in the structuring of DoD’s CTR program designed to promote trust and efficiency is the opening of CTR Directorate Field Offices in several capitals throughout the former Soviet Union (Kiev, Tbilisi, Baku, Tashkent, etc.) and the concomitant hiring of foreign nationals to help staff these offices. Although relatively new, these local offices afford a consistent in-country presence and continuity in DoD representation on the ground. Local offices also provide needed language skills and insider knowledge in navigating the host country’s legal and regulatory structures; create indigenous capacity that will enhance the prospects for the sustainability of efforts; and achieve the aforementioned desired objectives in a highly cost-effective manner.

The Policy-Implementation Divide

Additional bureaucratic impediments arise as a result of the bifurcation of roles and responsibilities between the Pentagon and the State Department. The Department of Defense, charged with articulating the policy objectives for CTR efforts in the states of the former Soviet Union, is not responsible for generating an overarching strategic plan for each country, leaving nonproliferation efforts occasionally at odds with other foreign policy objectives. When seemingly discrete elements of US foreign policy are linked, impediments to CTR implementation emerge. As one example, US assistance related to nonproliferation objectives was withheld from some former Soviet states until these countries concluded bilateral Article 98 agreements with the United States. These agreements guaranteed that the host state would not submit claims against US persons with the International Criminal Court. In other instances, the political focus on human rights in several of the host countries has complicated

efficient implementation of DoD's threat reduction programs when CTR "carrots" are held back in the face of perceived human rights violations. If indeed proliferation is the most serious threat faced by the United States, such linkage ultimately harms American national security interests.

Extended delays in approval times for communication with and travel to host countries creates another needless impediment to CTR Program Managers' ability to exercise adequate oversight and take advantage of fortuitous circumstances on the ground. In the case of travel, the several months needed for approval is due to the requirement that both USD(P) and the State Department sign off on each request.⁴⁵ Whereas the impact of delays could serve to hone the program managers' long-range planning skills, such delays not only threaten their ability to build the critical personal relationships and mutual trust with their host country counterparts, but also impede their ability to exploit near-term opportunities on the ground when they arise, within a reasonable timeframe.

Finally, the lack of a clear articulation of nonproliferation threats and objectives in the overarching strategic plan for each country is compounded by organizational structures within the Defense Department itself. As outlined earlier, a long chain-of-command separates those who make policy and the myriad actors actually charged with achieving those policy objectives. The CTR Integrating Contractors (CTRIC) and their subcontractors in particular are, at times, unclear as to where their activities fit into the broader US Government nonproliferation strategy.

Public Relations

Unlike their State and Energy Department counterparts in CNP efforts, CTR program managers are constrained in their ability to interact either with interested offices on Capitol Hill or with the media. Briefings or information provided to Hill audiences are generally within the purview of USD(P). Moreover, the CTR public affairs office generally assumes a "passive" role with respect to interactions with the media and the general public on the work of the CTR Directorate. While there is good reason to approach Capitol Hill offices and the media with prudence, coordination, and caution, the benefits of greater congressional understanding and wider media attention to the successes of these efforts undoubtedly outweigh the potential pitfalls—particularly given the dramatic return on investment these efforts have yielded the national security of the United States. Often, the only exposure Members of Congress and the

⁴⁵ It is worth noting that previously such requests were assumed approved 72 hours after submission, unless the request was explicitly rejected within that timeframe.

media have to the CTR programs is limited to the damaging reports issued by an Inspector General or the Government Accountability Office (GAO) when program discrepancies inevitably occur. In short, the result of an overly cautious public relations approach has been an external perception of CTR activities as rife with accounting and implementation errors rather than as an innovative national nonproliferation tool delivering unparalleled cost-effective security to the American people.

(ii) The Department of Energy

Realizing that CTR could benefit from additional expertise, and that an expanded mission was ultimately critical to manage the broad panoply of challenges emanating from the states of the former Soviet Union, the Departments of Energy and State launched coordinated nonproliferation programs of their own. The logical expansion of nonproliferation efforts to other departments increased the variety and scope of Cooperative Nonproliferation assistance that the US was able to offer.

The Department of Defense continued to focus on efforts to safeguard and destroy nuclear, biological, and chemical weapons and associated infrastructure, while expanding some of its efforts to combat material exports and “brain drain”—the loss or proliferation of knowledge from the former Soviet Union. To this end, the Department of Energy, with long-standing expertise in US nuclear weapons management and domestic materials control logically assumed an enhanced role under new bilateral efforts with the FSU. Today, DoE operates a wide array of Cooperative Nonproliferation subprograms including:⁴⁶

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⁴⁶ For further information on DoE nonproliferation programs, please see: <<http://www.stimson.org/cnp>>.

- the **International Nuclear Materials Protection and Cooperation (NMP&C)** efforts which aim to consolidate, secure and eliminate nuclear warheads and dangerous, weapons-usable nuclear material, and to fight nuclear smuggling by installing detection equipment at strategic border crossings and targeted “Megaports” around the globe;

Program	FY 2005	FY 2006	FY 2007 Request
International Nuclear Materials Protection and Cooperation	US\$319,451,000*	US\$422,730,000	US\$413,182,000

*This amount does not include the US\$84,000,000 provided in an emergency supplemental. It does include US\$25,037,000 for the International Radiological Threat Reduction program, which, as of FY 2006, resides in the Global Threat Reduction Initiative account.

- the **Elimination of Weapons-Grade Plutonium Production (EWGPP)** program which will help Russia shut down three plutonium-producing nuclear reactors (one in Seversk, two in Zheleznogorsk), and replace their power production with fossil-fuel power plants;

Program	FY 2005	FY 2006	FY 2007 Request
Elimination of Weapons-Grade Plutonium Production	US\$67,331,000	US\$174,423,000	US\$206,654,000

- the **Russian Plutonium Disposition** efforts to assist Russia in fulfilling its agreement with the US to turn thirty-four metric tons of excess plutonium into mixed oxide (MOX) fuel to be burned in light-water nuclear reactors;

Program	FY 2005	FY 2006	FY 2007 Request
Russian Plutonium Disposition	US\$63,493,000	US\$34,163,000	US\$34,695,000

- the **Global Threat Reduction Initiative (GTRI)** which aims to return fresh and spent HEU to Russia or the US from around the globe, to convert research reactor cores from HEU to LEU, and to enhance nuclear research reactor security in general;

Program	FY 2005	FY 2006	FY 2007 Request
Global Threat Reduction Initiative	N/A	US\$96,995,000	US\$106,818,000

*Several programs were consolidated into the Global Threat Reduction Initiative beginning in FY 2006.

- the **Nonproliferation and International Security (N&IS)** efforts which include a broad suite of efforts to engage the resident human capacity within the former WMD infrastructure of the Soviet Union, programs to enhance global export controls and safeguards, and monitoring of the HEU Purchase Agreement that will result in 500 metric tons of downblended HEU.

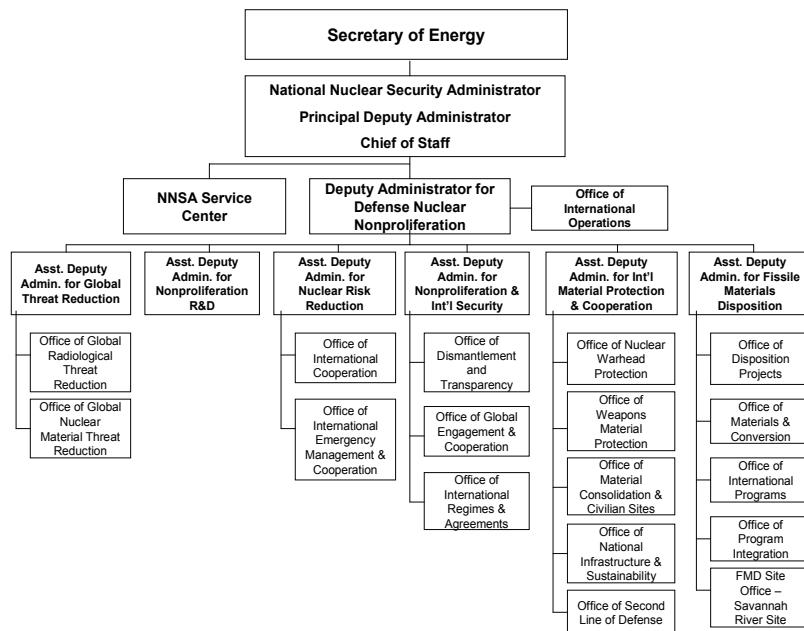
Program	FY 2005	FY 2006	FY 2007 Request
Nonproliferation and International Security	US\$143,764,000*	US\$74,250,000*	US\$127,411,000*

* These amounts are influenced by the reorganization of programs within NNSA. For example, funding for transparency measures regarding the HEU Purchase Agreement was provided in a separate account until FY 2007.

Implementation Structure

Responsibility for implementing DoE's nonproliferation activities resides with the Administrator of the National Nuclear Security Administration (NNSA). Individual program offices report upward to one of six Assistant Deputy Administrators and ultimately to the NNSA's Deputy Administrator for Defense Nuclear Nonproliferation. Perhaps the most striking characteristic of NNSA's management structure, when compared to the organization of DoD programs, is the merging of policy and implementation functions. The benefits of this structure will be discussed below.

Figure 8: National Nuclear Security Administration Management Structure for the Defense Nuclear Nonproliferation Programs



Political Attention

The Department of Energy (DoE) efforts began largely as scientist-to-scientist (or lab-to-lab) initiatives between personnel at the US National Laboratories and their Russian counterparts. Early programs were predicated on the need to build trust, assess needs, and develop collaborative plans to reduce risks. Since then, DoE's programs at the National Nuclear Security Administration have grown substantially. Currently, the lion's share of US Government-wide CNP-related programs—and the largest budgets—are administered by NNSA and encompass a broad spectrum of FSU and non-FSU focused activities. Unlike CTR's experience at DoD, the overall size of nonproliferation activities as a percentage of the total DoE/NNSA budget has conferred a particular structural advantage to this agency's efforts. Nonproliferation funding accounts for about nine percent of NNSA's annual outlays.⁴⁷ Not surprisingly, program managers at NNSA enjoy the sustained involvement of senior DoE/NNSA leadership, including intermittent attention from the Secretary of Energy, in providing political muscle to advance the agenda with their Russian and other FSU host states. Unlike their

⁴⁷ The amount appropriated for all of NNSA's activities in fiscal year 2006 was US\$9.1 billion, of which US\$823.3 million (9.04%) was designated for nonproliferation efforts. The fiscal year 2007 request for NNSA totaled US\$9.3 billion, with US\$834.4 million (8.97%) allocated to nonproliferation.

counterparts at the Pentagon, successive Secretaries of Energy from Hazel O’Leary (1993-1997) through Secretary Samuel Bodman (2005-present) have taken a personal interest in the success of nonproliferation activities at NNSA. This high-level attention also translates into advocacy for NNSA programming up through and including Cabinet-level advocacy within the United States Government. However, even this relatively high percentage of budgetary commitment and parallel senior-level leadership must be viewed within the context of direct competition for resources vis-à-vis the weapons related programs in that same agency’s budget and mission. When pitted head-to-head, DoE’s offensive nuclear mission far outstrips the defense nonproliferation portfolio both financially and in terms of political prioritization.

The Policy-Implementation Divide

Although DoE/NNSA has a number of layers in the hierarchy between policymaking and on the ground program implementation comparable to DoD, the connection between NNSA Policy Planning and nonproliferation program managers working to translate that policy into concrete plans for implementation is direct. Seldom do National Laboratory officials, or any of the private sector contractors to NNSA, experience CTR-like needs for greater clarity as to how their activities contribute to broad US nonproliferation objectives. In addition, interactions with offices on Capitol Hill, although not always positive, are frequent, and the public affairs office is proactive in its efforts to keep the media informed regarding NNSA’s successes.

In general, the long-term relationship and confidence building between US Laboratory personnel and their FSU counterparts is largely undervalued, particularly by Capitol Hill.

Whereas program direction and oversight are performed by DoE/NNSA Headquarters, the National Laboratories play a key role in the Energy Department’s nonproliferation activities. In many instances, due to lower turnover than is typical of most government agencies or even the rotating pool of private company contractors, National Laboratory personnel provide continuity as interlocutors for their FSU counterparts. This also has allowed Lab personnel to provide the “glue” between disparate activities across the spectrum of programs, thus breaking down naturally occurring silos between even intra-agency efforts. In general, however, the long-term relationship and confidence building between US Laboratory personnel and their FSU counterparts is largely undervalued, particularly by Capitol Hill. Ongoing engagement at the scientist-to-scientist level has succeeded in building the long-term trust and respect

critical to the success of these programs. Because of their critical role, a rising trend toward decreasing the funding and therefore the prioritization of science-to-science efforts will likely prove short-sighted as these activities often provide the necessary foundation of trust that supports the broader panoply of nonproliferation programming. While some DoE/NNSA program implementation is contracted directly to a handful of businesses involved in these efforts, more frequently the National Laboratories have been responsible for contracting the business counterparts responsible for achieving CNP program objectives. Administrative support for the process is then funneled through a single office located in Albuquerque, New Mexico. The National Nuclear Security Administration Service Center's reporting chain does not intersect with any of the nonproliferation offices whose program managers are responsible for contract oversight, but rather reports directly to the senior-most leadership within NNSA.

A clear transfer of authority after conclusion of an agreement and prior to its execution is critical to ensure that primary authority and responsibility for any particular aspect of a program falls to only one agency, thereby avoiding confusion and potential turf battles over “ownership” of the program between agencies.

Finally, similar to the Department of Defense, DoE/NNSA experiences disputes over the allocation of roles and responsibilities vis-à-vis the State Department. Whereas the State Department is frequently responsible for negotiating the agreements with the host countries, execution of actual projects often falls to DoE/NNSA. A clear transfer of authority after conclusion of an agreement and prior to its execution is critical to ensure that primary authority and responsibility for any particular aspect of a program falls to only one agency, thereby avoiding confusion and potential turf battles over “ownership” of the program between agencies. At

present, transfer of authority occurs on an *ad hoc* basis. At times, the point of transfer has been unclear, leading to interdepartmental conflict.

Program integration and sustainability

When the suite of US Government nonproliferation programs was established in the 1990s, little thought was given to its eventual transition to a self-sustaining effort funded and undertaken wholly by the host country. The failure to develop full scope integration with the host states has led to current day challenges in making such transitions. A telling example of the challenges program managers

face as a result of these early choices is reflected in DoE/NNSA's Elimination of Weapons Grade Plutonium Production (EWGPP) program. Under this initiative, Russia's last three plutonium producing nuclear reactors are to be shut down, eliminating a potentially dangerous source of nuclear weapons materials for terrorists. Workforce redirect was not incorporated as part of the initial planning process for the EWGPP effort in Seversk and Zheleznogorsk.⁴⁸ This oversight leaves open the possibility that the eventual shutdown of the reactors may be delayed or even stopped entirely due to local concerns regarding the unemployment problems subsequent to reactor shutdown. Without an integrated strategy that addresses the consequences of US program

Without an integrated strategy that addresses the consequences of US program objectives in a more holistic manner, CNP program implementation can be problematic, and sustainability will be virtually impossible.

objectives in a more holistic manner, CNP program implementation can be problematic, and sustainability will be virtually impossible. To date, examples of successful leveraging between program areas have generally occurred by happenstance rather than by design. Approaching all DoE programs, including the MPC&A program, Second Line of Defense, and the Megaports Initiative, as different layers of an integrated strategy would offer different opportunities to leverage specific initiatives off of one another, or even provide more attractive incentives to achieve host-country participation. One glowing example of successful integration across DoE programs, other US Government agencies, and the other G8 contributors to the Global Partnership is the Law Enforcement Targeted Initiative (see Box #2). Earlier episodes of leveraging between government agencies were equally sporadic but no less instructive. Regrettably, despite occasional triumphs, the US Government has generally failed to learn from the lessons of previous efforts and today remains mired in sacrosanct agency stovepipes.

⁴⁸ This oversight is perhaps attributable to the fact that the EWGPP program was initiated at the Department of Defense and only later transferred under the auspices of the Department of Energy.

Box 2

**LAW ENFORCEMENT TARGETED INITIATIVE:
A SCIENTIST ENGAGEMENT AND REDIRECTION EFFORT**

The International Science and Technology Center's (ISTC) Law Enforcement Targeted Initiative (LETI) is a new nonproliferation partnership to promote the development of civilian law enforcement technologies by former Soviet WMD institutes for Russian law enforcement agencies. The LETI supports one of the primary threat reduction goals identified by the US Government and the Global Partnership -- the redirection of former weapons scientists to productive, civilian activity -- and is a key initiative for the Global Initiatives for Proliferation Prevention (GIPP) program at the U.S. Department of Energy/National Nuclear Security Administration (DoE/NNSA).

Over the past two years, GIPP has spearheaded development of the LETI in an effort to leverage its own resources with those of other US Government and international scientist engagement programs to maximize the impact and sustainability of its scientist redirection activities in the Russian Federation. IPP has traditionally utilized business partnerships with US industry to achieve long-term commercial outcomes promoting sustainability and to help ensure a permanent transition from WMD to civilian work. The LETI represents an alternative approach to achieving sustainability. It is based on developing an indigenous, procurement or customer-based relationship between the Russian Government, e.g., the Ministry of the Interior (MVD), and select former WMD institutes in Russia. LETI projects may involve commercial partners as well, but do not require their involvement to achieve sustainable outcomes. Under this model, civilian law enforcement agencies are the customers of Russian institute R&D services.

This model of cooperation is based on a similar program that DoE supported in the United States in the mid-1990s to promote economic diversification among the DoE laboratory complex. Under this program, DoE National Laboratories developed forensics and other law enforcement methods and technologies in cooperation with local, state and federal law enforcement agencies. While the program has since ended, the relationships created through this program continue for purposes of providing forensic capabilities for local and state police and commercialization of law enforcement technologies with industry.

The Russian LETI is administered through the ISTC; funding parties include the US (State Department and DoE/NNSA), the Canadian Government, and the European Union. The ISTC Governing Board approved the LETI on March 30, 2006, and issued a first call for proposals in May 2006.

(iii) The Department of State

From the outset, the Department of State has been a critical player in the CNP arena through its role in negotiating the implementing agreements that have allowed programs to operate. While DoD and DoE have the technical capacity to directly implement programs on the ground in the region, the State Department's traditional role has been to provide the necessary diplomatic

support to achieve the mission. State provides the lead, for instance, in bilateral and multilateral negotiations leading to conclusion of the implementing agreements which establish the legal umbrella for program activities (see Box #3). Without these agreements, as witnessed by the September 2006 dissolution of DoE's Nuclear Cities Initiative, no CNP programming would be possible.

As CNP programming has expanded, the State Department role has expanded accordingly, particularly regarding efforts to meet the brain-drain challenge from the FSU and beyond.⁴⁹ In 1992, the Department helped pioneer the **International Science and Technology Center (ISTC)** in Moscow and (in 1993) the **Science and Technology Center in Ukraine (STCU)** in Kiev. The STCs seek to provide weapons experts in the FSU with opportunities to redirect their talents to peaceful activities, contribute to the solution of national and international science and technology problems, reinforce the transition to market economies, support basic and applied research, and promote integration of targeted scientists into the global research community. This is achieved by providing short-term research grants to former weapons scientists to remain employed within their erstwhile weapons institutes in the region. In 2005, the ISTC alone paid out US\$43.9 million worth of grants to 24,984 former Soviet weapons personnel and further leveraged US\$21.5 million from its private sector partners for new project funding. From its inception to the present, the Center has distributed over US\$200 million designed to prevent the proliferation of weapons expertise.⁵⁰ All told, ISTC officials claim to have reached more than 58,000 former weapons experts. Similar efforts are underway within the STCU in Kiev.

Program	FY 2005	FY 2006	FY 2007 Request
Science Centers Program (ISTC and STCU)	~US\$30,000,000*	US\$21,500,000*	US\$22,700,000

*Figures for FY 2005 and FY 2006 were provided by the Russian American Nuclear Security Council (RANSAC). The figure for FY 2005 is a rough estimate based on previous budget averages.⁵¹

⁴⁹ For more information on the State Department's nonproliferation activities, please see: <<http://www.stimson.org/cnp>>.

⁵⁰ International Science and Technology Center, "Annual Report 2005" (Moscow: International Science and Technology Center, 2006): 1, accessed at: <<http://istc.ru/ISTC/sc.nsf/AR-2005-en.pdf>>.

⁵¹ William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2006 Budget Request for Global WMD Threat Reduction Programs," RANSAC (March 2005), accessed at: <http://www.ransac.org/Documents/preliminary_analysis_fy2006_state_request.pdf>; and William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2007 Budget Request for Global WMD Threat Reduction Programs," RANSAC (May 2006), accessed at: <http://www.ransac.org/Documents/fy_2007_state_request_analysis.pdf>.

Box 3

**SUMMARY OF IMPLEMENTING AGREEMENTS
SUPPORTING COOPERATIVE NONPROLIFERATION**

- **CTR Umbrella Agreement:** The main accord under which DoD's CTR activities are carried out, the Umbrella Agreement is an over-arching, cross-cutting pact that serves as the foundation for all Cooperative Nonproliferation activities.¹ The original Umbrella Agreement allows for smaller, more detailed implementing agreements to be negotiated. The Umbrella Agreement was signed in 1992, and renewed by a special protocol in 1999. It was renewed again in June 2006.
- **Plutonium Disposition:** In September of 2000, after two years of scientific cooperation, the US and Russia each agreed to eliminate thirty-four metric tons of plutonium “no longer required for defense purposes.” The agreement stated that disposal steps in each country would occur concurrently. This agreement was delayed from 2002 to 2006 due to disagreements on US liability protection in Russia, which were officially resolved in September with the ratification of a new liability protocol.
- **Science and Technology Centers:** Signed in 1992 by the US, Russia, the European Union, and Japan, the Agreement to Establish an International Science and Technology Center created the ISTC, which aims to prevent the proliferation of weapons expertise by offering weapons specialists opportunities for peaceful scientific research.² The Science and Technology Center in Ukraine was founded by a similar agreement in 1993.³
- **HEU Purchase Agreement:** In February 1993, Russia agreed to sell the US 500 metric tons of highly enriched uranium (HEU)—approximately 30 metric tons per year—that the US would downblend into low enriched uranium (LEU).⁴ This LEU would then be used as fuel for American nuclear power plants. Currently, the US has downblended 285 metric tons of HEU.⁵
- **Nuclear Cities Initiative:** The NCI Agreement, similar to the Plutonium Disposition Agreement, has been seriously delayed by liability issues. The Agreement, signed in September 1998, aimed to commercialize products made in Russia’s ten closed nuclear cities, and to prevent the proliferation of weapons expertise from those cities.⁶ Because a liability dispute caused the original program to expire, the US hopes to negotiate a new agreement with Russia to restart the NCI.⁷
- **Elimination of Weapons-Grade Plutonium Production:** In order to prevent Russia’s stockpile of nuclear material from growing, the US and Russia signed an agreement to close three plutonium-producing reactors in 1994. The current plan is to replace the reactors in Seversk and Zheleznogorsk with coal-powered energy plants.⁸
- **Russian Research Reactor Fuel Return (RRRFR):** Recognizing the danger posed by unsecured HEU in research reactors around the world, the US and Russia signed an agreement in 2004 to implement the RRRFR program, which aims to repatriate Russian-origin HEU.⁹

Box 3 . . . continued

**SUMMARY OF IMPLEMENTING AGREEMENTS
SUPPORTING COOPERATIVE NONPROLIFERATION (CONT.)**

- **Strategic Offensive Arms Elimination (SOAE):** SOAE, one of the smaller implementing agreements guided by the Umbrella Agreement, guides the dismantling and destruction of nuclear weapons by the US in Russia. Signed in 1992, it was amended in 1997 and 1998.¹⁰

¹ Vladimir Orlov et al, eds. *Guidebook: Global Partnership Against the Spread of Weapons of Mass Destruction* (Moscow: Human Rights Publishers, 2006).

² ISTC, *Agreement to Establish an International Science and Technology Center* (signed in Moscow, 1992) <<http://www.istc.ru/ISTC/sc.nsf/html/statutory-documents-istc-agreement.htm>>.

³ STCU, *Agreement to Establish a Science and Technology Center in Ukraine* (signed in Kiev, 1993) <http://www.stcu.int/documents/stcu_inf/Founding_Documents/Agreement/>.

⁴ Matthew Bunn, “Reducing Excess Stockpiles: US-Russian HEU Purchase Agreement,” *Securing the Bomb* (Cambridge, MA: Harvard University, 2002) <http://www.nti.org/e_research/cnwm/reducing/heudeal.asp>.

⁵ United States Enrichment Corporation, “Status,” *Megatons-to-Megawatts* (June 27, 2006) <http://www.usec.com/v2001_02/HTML/Megatons_status.asp>.

⁶ Nuclear Threat Initiative, “Russia: Nuclear Cities Initiative,” *NIS Nuclear and Missile Database*, February 2, 2005 <<http://www.nti.org/db/nisprofs/russia/orasast/doe/closcity.htm>>.

⁷ Matthew Bunn and Anthony Wier, *Securing the Bomb 2006* (Cambridge, MA: Harvard University, 2006).

⁸ National Nuclear Security Administration, “Elimination of Weapons-Grade Plutonium Production” <<http://www.nnsa.doe.gov/na-20/ewgpp.shtml>>.

⁹ National Nuclear Security Administration, “Russian Research Reactor Fuel Return” <<http://www.nnsa.doe.gov/na-20/rrrfr.shtml>>.

¹⁰ Vladimir Orlov, *Guidebook: Global Partnership* (2006).

Along with the STCs, the **Bio-Chem Redirect program** at the Department of State works to find sources of peaceful research for former chemical and biological weapons scientists. The program sponsors peaceful collaborative research between targeted experts in the FSU and American scientists at the US Departments of Health and Human Services (DHHS) and Agriculture (USDA), and the Environmental Protection Agency (EPA). BCR was designed to circumvent the institutional limitations within the Department of State emanating from that agency’s inability to direct contract with outside entities. Under BCR, funds are passed through to, for example, the Biotechnology Engagement Program (BTEP) at DHHS. BTEP then works to encourage collaboration between DHHS and the former biological and chemical defense institutes and Ministry of Health institutes in the FSU region. In the US, BTEP support is available only to DHHS scientists at the CDC, FDA and NIH. At this time, non-government scientists—including the private sector—are not eligible for grant awards. Similar efforts are operated out of USDA under the FSU Scientific Cooperation program at the Agricultural Research Service, and at the EPA.

Program	FY 2005	FY 2006	FY 2007 Request
Bio-Chem Redirect	US\$17,000,000*	US\$16,100,000	US\$17,000,000

*Budget estimates for FY 2005 and FY 2006 were provided by the Russian American Nuclear Security Council (RANSAC).⁵²

The **BioIndustry Initiative** (BII) at the Department of State aims to convert bioweapons facilities into commercial biotech enterprises much as the Department of Defense attempted to convert weapons factories in the 1990s. The BII was created by Congress after September 11, 2001 in an attempt to engage the private sector and develop new models of sustainability, though it is unclear what, if any, direct role industry is playing in providing commercially sustainable employment. BII's mandate is focused solely on biological threats as it works to transition large-scale FSU biological weapons production facilities, their technology, and associated expertise to commercial uses. It also seeks to partner US and former Soviet biological and chemical weapons scientists to develop and accelerate the production of vaccines for infectious diseases that affect the FSU and the world. The central priority of BII is the long-term transformation of existing facilities into viable research and production institutions. BII works to engage specific institutes, assess their core capabilities, as well as the appropriate domestic and international market, and then pair Russian laboratories with American researchers in both academic and industrial sectors. It is anticipated that in 2007 major commercial reconfiguration projects such as the dismantlement of BW production buildings and the development of an animal feed mill at a former production facility in Georgia will come to fruition, thus testing the viability of the BII model.⁵³

Program	FY 2005	FY 2006	FY 2007 Request
Bio-Industry Initiative	~US\$3,000,000	US\$6,000,000	US\$13,000,000

*Figures for FY 2005 and FY 2006 were provided by the Russian American Nuclear Security Council (RANSAC). The figure for FY 2005 is a rough estimate based on previous budget averages.⁵⁴

⁵² William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2006 Budget Request for Global WMD Threat Reduction Programs," RANSAC (March 2005), accessed at: <http://www.ransac.org/Documents/preliminary_analysis_fy2006_state_request.pdf>; and William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2007 Budget Request for Global WMD Threat Reduction Programs," RANSAC (May 2006), accessed at: <http://www.ransac.org/Documents/fy_2007_state_request_analysis.pdf>.

⁵³ The BioIndustry Initiative and the Bio-Chem Redirect programs at the Department of State were the only US Government efforts which declined to participate in our study. Thus, the conclusions drawn regarding those programs are best estimates based upon discussions with the private sector, other government representatives, and publicly available information.

⁵⁴ William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2006 Budget Request for Global WMD Threat Reduction Programs," RANSAC (March 2005), accessed at: <http://www.ransac.org/Documents/preliminary_analysis_fy2006_state_request.pdf>;

Authorized by Congress in 1995, the **US Civilian Research & Development Foundation (CRDF)** is a unique public-private partnership whose mission is to support international scientific and technical collaboration through grants, technical resources, and training. Although initially funded by the Soros Foundation and a matching grant from the Defense Department, US Government support for nonproliferation since the mid-1990s has come primarily through the Freedom Support Act account. Today, much of CRDF's mission is devoted to strengthening science across the states of the FSU, moving it away from weapons research toward sustainable and productive activities.⁵⁵ The Foundation has reached over 6,600 specialists in its Cooperative Grants Program which "offers an avenue into new research directions and collaborative opportunities for both U.S. and Eurasian scientists and engineers."⁵⁶ In Ukraine alone, CRDF has awarded 517 grants, committed more than US\$10.5 million, and helped redirect 674 weapons specialists.⁵⁷ The breadth of CRDF programming has also expanded considerably and today the organization, *inter alia*, promotes industry partnerships, science education, and has developed a series of sustainable national research institutions across the FSU.⁵⁸ CRDF has also expanded its work outside of the former Soviet Union with projects in Iraq and the Middle East, increasing the pool of personnel that can benefit from the redirection programs.⁵⁹ A history of successful scientific engagement has led CRDF to provide expertise and services to other US Government nonproliferation programs. Through a contract with the Defense Threat Reduction Agency and a subcontract with Bechtel National, Inc., CRDF provides project management support to cooperative biological research projects under the DoD's Biological Threat Reduction Program (BTRP). CRDF also supports implementation of the Department of State's Nonproliferation of Weapons of Mass Destruction Expertise program, which includes the BioIndustry Initiative, Bio-Chem Redirect, the Science and Technology Centers, and Iraqi and Libyan Scientist Redirection programs. The ingenuity that CRDF staff has applied to its mission has been facilitated by enviable flexibility the organization has been granted in pursuing its mandate—particularly when

and William Hoehn, "Policy Update: Preliminary Analysis of the U.S. State Department's Fiscal Year 2007 Budget Request for Global WMD Threat Reduction Programs," RANSAC (May 2006), accessed at: <http://www.ransac.org/Documents/fy_2007_state_request_analysis.pdf>

⁵⁵ United States Civilian Research and Development Foundation, "Overview," *About CRDF* (2006), accessed at: <<http://www.crdf.org/about/>>.

⁵⁶ United States Civilian Research and Development Foundation, "Cooperative Research," *Our Key Focus Areas* (2006), accessed at: <http://www.crdf.org/focus/focus_show.htm?doc_id=290100>.

⁵⁷ United States Civilian Research and Development Foundation, "Looking Back, Moving Forward" (September 1, 2005), accessed at: <http://www.crdf.org/newsroom/newsroom_show.htm?doc_id=295810>.

⁵⁸ For further information on CRDF, please visit: www.crdf.org.

⁵⁹ United States Civilian Research and Development Foundation, *Annual Report 2004* (Arlington, VA: United States Civilian Research and Development Foundation, 2006), accessed at: <http://www.crdf.org/usr_doc/2004_Annual_Report-Final.pdf>.

compared with similar government efforts. This freedom of movement has made CRDF one of the most efficient and successful initiatives within the suite of US nonproliferation programs.

Program	FY 2005	FY 2006	FY 2007 Request
Civilian Research and Development Foundation	US\$8,000,000*	US\$8,000,000*	US\$8,000,000*

* This figure represents total funding from the State Department under the Freedom Support Act Account. It reflects only a portion of CRDF's total budget—about US\$26.5 million in FY 2006. A significant portion of this overall budget is dedicated to scientist redirection efforts. All three implementing agencies—Defense, Energy and State—leverage CRDF to implement some component of their redirection efforts.

Today, the full scope of State programs focuses mainly on the human dimension of nonproliferation, but other areas support the capacity building necessary to stem the proliferation of weapons of mass destruction, delivery systems, and technology, and to enhance border security. Two additional subprograms at the Department of State include the **Nonproliferation and Disarmament Fund**, which works to dismantle the WMD infrastructure and stem WMD and advanced conventional weapons proliferation, and the **Export Control and Related Border Security Assistance program** that provides governments with equipment and expertise to build anti-trafficking capabilities.

Program	FY 2005	FY 2006	FY 2007 Request
Nonproliferation and Disarmament Fund (NDF)	US\$31,744,000	US\$37,125,000	US\$38,000,000
Export Control and Related Border Security Assistance	US\$36,496,000	US\$42,966,000	US\$45,050,000

An analysis of the State Department's structure with respect to CNP efforts gives rise to an ironic conclusion: State has all the necessary authorities, but lacks capacity, funding, and some operational competency for execution of a broad CNP mandate. Though the State Department's role is largely focused on those programs designed to provide peaceful civilian employment for former weapons scientists, the State Department is responsible for assuring that other agencies' efforts conform with broader US foreign policy objectives. It also is responsible for negotiating many of the implementing agreements that provide the foundation for other agencies' programs, making it a critical hub for all CNP efforts. Despite the centrality of its role, the Department does not have the internal competencies for large-scale project execution, the ability to contract directly with other actors for implementation of the programs, or the mandate

for efforts beyond those focused on the redirection of scientific talent toward peaceful pursuits. Correspondingly, the State Department devotes only a small proportion of its annual budget—0.51 percent in FY 2006—to these efforts.⁶⁰ Again, like DoD and unlike DoE, Cooperative Nonproliferation programs do not receive significant attention from high-level State Department officials. This, in turn, feeds a cycle of depressed appropriations and inevitably, reduced attention from political leadership.

Finally, it is important to note that in the scheme of Cooperative Nonproliferation efforts, those programs focused on the human dimension, (*i.e.* proliferation of weapons know-how) have traditionally been undervalued and underfunded. While efforts to identify, protect, and dispose of the finite number of excess weapons and materials throughout the states of the former Soviet Union help eliminate the tangible threat, the human proliferation problem is only likely to get worse. Demand for this knowledge is growing at the state and, most worryingly, the sub-state levels. It is logical to assume that potentially unethical but highly trained scientists, engineers, and technicians from around the globe will rush to meet that demand. While the threat continues to grow, redirection and engagement efforts across US Government agencies face substantial difficulties in measuring their impact and gauging success. This creates serious liabilities on Capitol Hill as appropriators face the challenges of funding often intangible goals over clear and “sellable” items like border security and radiation detection technologies. The immediate and ongoing challenge for State is making these programs productive and relevant and then sustaining them in an environment that will likely become increasingly hostile to the Department’s mission.

The expansion of CTR to multiple federal agencies, and the enduring struggle to “finish” the job, has resulted in a perception of CNP as a patchwork of supply-side programs of moderate utility in addressing real security threats.

THE ROLE OF CONGRESS

Cooperative Threat Reduction, in its original iteration, encompassed both the demand and supply side of the proliferation equation by persuading the newly independent states of Ukraine, Belarus and Kazakhstan to opt out of nuclear weapon state status and cooperate in returning the remnants of the Soviets’ nuclear arsenal to centralized repositories in Russia. In addition, CTR served as

⁶⁰ Project on Managing the Atom, “Threat Reduction Budgets,” *Securing the Bomb* (2006), accessed at: <http://www.nti.org/e_research/cnwm/charts/cnm_funding_interactive.asp>.

a means to assist Russia in meeting its nuclear disarmament commitments under the first Strategic Arms Reduction Treaty (START I). Its performance as a strategic approach to mitigating the proliferation risks of a heavily WMD-armed empire's unanticipated collapse is too frequently overlooked. For a variety of reasons, but for sporadic support, CTR was never embraced at sufficiently high levels within any administration or by Congress, and has not been promulgated as a strategic approach capable of addressing both sides of the proliferation equation. Rather, the expansion of CTR to multiple federal agencies, and the enduring struggle to "finish" the job, has resulted in a perception of CNP as a patchwork of supply-side programs of moderate utility in addressing "real" security threats. The numerous assessments of CNP efforts lamenting that the "response has never been commensurate with the threat" and urging for the establishment of a "nonproliferation czar" to prioritize, coordinate and streamline the US CNP toolkit, including ensuring sufficient budgetary means are made available to achieve US goals, reflect this simple fact.⁶¹

In light of the persistent low-level status allotted CNP efforts within the Executive Branch, the machinations within Congress with respect to oversight and support of these programs becomes more readily understandable. While it is important to underscore that the visionary leadership for CTR began on Capitol Hill, and that key Members of Congress have repeatedly played a formidable role in providing necessary and valiant leadership, it is difficult to understand why the legislative branch has not done more to support CNP efforts. The following assessment is based on observations, first-hand experience on Capitol Hill, and interviews that comprised the bulk of this study. It is intended as a helpful exposé for those hoping to influence the chaotic constellation of egos, ownership of issues, jurisdictional barriers, and inaccurate perceptions that sometimes inform congressional behavior.

Ownership

As a result of CNP's origins as the "Nunn-Lugar" initiative, leadership and "ownership" of the issue has been and continues to reside with the Chairman of the Senate Foreign Relations Committee, Senator Richard Lugar (R-IN). With Senator Sam Nunn's (D-GA) retirement in 1996, however, the critical bipartisan and multi-jurisdictional nature of this duo's leadership disappeared. A second

⁶¹ See Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction (Deutch Commission), *Combating Proliferation of Weapons of Mass Destruction* (Washington: Deutch Commission, 1999); Secretary of Energy Advisory Board, *A Report Card on the Department of Energy's Nonproliferation Programs with Russia* (Washington: US Department of Energy, 2001); The National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report* (New York: W.W. Norton & Company, 2004); and The United States Commission on National Security/21st Century (Hart-Rudman Commission), *Road Map for National Security: Imperative for Change* (Washington: Hart-Rudman Commission, 2001).

major legislative thrust arose with the 1996 Nunn-Lugar-Domenici bill. Although Nunn-Lugar is a familiar concept to many in the policy community, too few recognize or understand the importance of Senator Pete Domenici's (R-NM) leadership on CNP efforts. As Chairman of the Energy and Water Appropriations Subcommittee, Senator Domenici has repeatedly fought for budgetary increases to ensure that DoE/NNSA's efforts on fissile materials disposition and security, as well as the redirection of scientific talent, were adequately funded. As noted, today NNSA's percentage share of the nonproliferation funding dwarfs both DoD and State efforts. While Senator Barack Obama (D-IL) appears to be taking on the mantle of a strong and knowledgeable Democratic leader on this front, since the mid-1990s leadership on CNP-specific initiatives in the Senate has hinged on the wherewithal of the two Republican Senators from Indiana and New Mexico. And although the Republicans held the majority in both Houses for an extended period, there is finite leadership that can be provided (or political capital that will be expended) to fight the battles within one's own party, including persuading the Chairmen of other relevant Senate committees to allot sufficient time, attention, and resources to these efforts, and negotiating reasonable settlements in conference with their counterparts in the House.

While ownership of CNP in the Senate is clear, ironically, this reality only decreases the likelihood of other Senators taking sufficient interest to become experts on CNP programs or expend their own finite political capital to provide leadership. Two mutually reinforcing deterrents are at play. First, in the "gentlemanly game" of policymaking in the Senate, a Senator's "ownership" of an issue confers substantial deference on the part of others to remain respectful of that turf. Second, another Member's ownership and leadership on an issue allows others to provide lip service toward a good cause—co-sponsor a bill put forward by the leader, vote in favor of an amendment to further the effort, etc.—while minimizing their own expenditure of scarce capital.

This dynamic is of course true of any single policy issue which has not garnered the attention of the headlines and is not at the forefront of the public's concerns. In the case of CNP, however, these proclivities are exacerbated by other factors also at play, including: the players and procedures in the House, committee jurisdictions that confound comprehensive policymaking, and the sheer complexity of numerous programs that comprise the current CNP toolkit.

Jurisdictional Barriers

No single Committee has jurisdiction over the entire suite of activities. Real expertise resides with a handful of Members who serve on the relevant committees, a few professional staffers on those committees, and the few

Members' offices who have dedicated significant political capital to providing leadership on nonproliferation. For the vast majority of Members and their staffs, however, Cooperative Nonproliferation programs remain a collection of acronyms representing numerous initiatives that strive to resolve proliferation concerns outside of the public eye and, therefore, are of little value as a banner for a reelection campaign. For this overwhelming majority, dedicating the time required to understand what aspect of the threat each acronym strives to address and committing precious political clout to promoting these efforts would make little sense in light of the countless opportunities to use limited time and political capital toward other purposes.

Numerous earlier assessments of these programs have expressed the need for a high-level official in the White House to ensure proper prioritization and integration of these efforts. Very few, however, have noted that the same weaknesses of the Executive Branch are mirrored by the stovepipes of committee jurisdictions on Capitol Hill. Due to CNP programs being spread over three main Departments, numerous committees on Capitol Hill can assert jurisdiction over different aspects of these efforts and even different aspects of the same programs. Conversely, no one congressional committee is responsible for surveying the entire suite and ensuring that proper priorities and financial means have been put forward in the President's Budget. Many of these gaps are similar to those underscored by the 9/11 Commission and others following the intelligence failures leading to the September 11 attacks. The following committees have key legislative oversight and budgetary responsibilities for these programs: Senate and House Armed Services Committees, Senate Foreign Relations and House International Relations Committees, Senate and House Appropriations Subcommittees on Defense and on Energy and Water Development, and the Senate Appropriations Subcommittee on State, Foreign Operations, and Related Programs which has two counterparts in the House, namely, the Appropriations Subcommittee on Foreign Operations, Export Financing and Related Programs and the Appropriations Subcommittee on Science, the Departments of State, Justice, and Commerce, and Related Agencies.

Efforts within any one Committee to develop legislation strengthening a CNP program can also face difficulties by virtue of the fact that jurisdiction over the program is split between that Committee and another. For example, the efforts of the House Armed Services Committee (HASC) Vice-Chairman Curt Weldon (R-PA) to improve various DoE/NNSA programs have been frustrated on a number of occasions by assertions of jurisdiction by the House International Relations Committee (HIRC)—despite the fact that HASC clearly has jurisdiction over legislation authorizing appropriations for these programs.

Figures #9 and #10 offer an expansive rendering of the Senate and House Committees capable of asserting jurisdiction over some facet of CNP efforts. This chart mirrors the updated Deutsch Commission chart, Figure #5, outlining the Executive Branch activities on non- and counterproliferation efforts found on page 21-22 of this report. While the chart implies clear lines of authority, as the above example suggests, authorities and jurisdiction are not neatly siloed and effective oversight and coordination is almost impossible.

The most expansive jurisdiction resides with the respective Chambers' Armed Services Committees, as they oversee the policy and authorization of funding for the bulk of CNP activities. However, the continuity breaks down between authorization and appropriations for the defense account budgets as two separate appropriations subcommittees come into play to allocate funding for DoD and DoE/NNSA. Also, the Appropriations Committees frequently report bills providing funding without regard to the amounts authorized by the Armed Services Committees or the Senate Foreign Relations or House International Relations Committees. Lastly, increasingly the Department of Homeland Security is assuming a role in CNP-related activities, thus the corresponding congressional committees are asserting their jurisdiction in these specific program areas as well. While this is no less true of any complex program undertaken by the US Government, the enduring threat of proliferation as "the most critical unmet national security challenge" suggests that special consideration should be paid to ensuring effective oversight of the CNP programs.

Inaccurate Perceptions

Cooperative Nonproliferation efforts confront another liability in that they represent what are essentially preventive measures. The return on investment for something that does not happen is, indeed, difficult to measure and assign a specific value. Despite outstanding strides in, *inter alia*, weapons elimination and materials protection over the last fifteen years of these programs, one cannot definitively state that CNP efforts prevented a single terrorist incident or nuclear accident or quantity of deadly pathogen from being unleashed on civilians. Moreover, whereas programs to dismantle warheads or destroy delivery vehicles are sufficiently quantifiable and convey a valuable return on the taxpayer's investment, the fuzzy metrics in other program areas, particularly those attempting to prevent the proliferation of know-how, do not elicit a great deal of comfort on the part of congressional appropriators. This places these critical programs at the end of a very long funding queue with feeble levels of political support working in their favor. Finally, the slow pace of efforts and the lack of a clear "exit strategy" have consistently eroded policymakers' sense of urgency

regarding the threats and have understandably led to a degree of “donor fatigue” on Capitol Hill.

These public and policymaker perceptions have a significant impact on the success of the CNP agenda. When President George W. Bush and Senator John Kerry (D-MA) agreed in the 2004 presidential debates that nuclear proliferation presented the number one threat to US security, this did not elicit greater concern among the broader public. Instead, this unwavering bipartisan consensus appears to have suggested to Congress and to the general public that the government is, by logical extension, doing everything in its power to mitigate the threat. Without heightened public questioning, many elected officials are apt to take the path of least resistance, opting to support those efforts that are “sellable” back home even over those that might yield a higher return on national security investment. Simultaneously, the advocates of CNP efforts—both within and outside of government—have been guilty of predicting Armageddon for over a dozen years in order to try to spur policymakers into action. Bipartisan agreement regarding the threat and more than a decade of catastrophic predictions that have thus far proven false appear to have produced the perfect alchemy for inaction. This self reinforcing dynamic has doomed CNP efforts to public and bureaucratic obscurity.

THE ROLE OF THE INTERNATIONAL COMMUNITY

While our study focused deliberately on addressing impediments to US programs, no study could be complete without referencing three additional and critically important efforts that build upon but ultimately transcend US CNP programs: the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, United Nations Security Council Resolution 1540, and the Global Initiative to Prevent Nuclear Terrorism. Of course, the Cooperative Nonproliferation programs were conceived, designed, and initially implemented wholly under the financial auspices of the United States Government and today Washington remains by far the dominant player in bilateral and multilateral efforts to isolate, secure, or otherwise eliminate nuclear, biological, and chemical weapons, materials, and expertise. But while still the dominant donor, the United States is no longer the only state contributing to significant programmatic nonproliferation efforts.

FIGURE 9

FIGURE 9 continued

Figure 10

Figure 10 continued

Particularly since the attacks of September 11, 2001, developed states around the globe have rallied to tighten the web of supply and demand side efforts to prevent the proliferation of weapons of mass destruction. Many states in need of proliferation assistance and states at risk of unintentionally contributing to the proliferation threat have responded with unprecedented willingness to collaborate with the international community to prevent the unintended diffusion of illicit weapons, materials, and technologies.

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction

Recognizing the incomparable return on investment, as well as the need to accelerate global efforts to reduce the proliferation threat in the wake of the September 11 terrorist attacks, on June 27, 2002, at the Kananaskis Summit in Alberta, the G8—the seven major industrial countries: Canada, France, the United States, the United Kingdom, Germany, Japan, and Italy, plus Russia—reached a new international understanding coined the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction. The initiative built upon the successful threat reduction programs launched a decade earlier by Russia and the United States and committed the G8 to raising up to US\$20 billion over ten years to fund nonproliferation projects, initially in Russia, to mitigate the threat of WMD proliferation. The agreement was a major step forward for collaborative global nonproliferation efforts, essentially doubling overall resource levels. Among the priority concerns delineated at Kananaskis were the destruction of chemical weapons, the dismantlement of decommissioned nuclear submarines, the disposition of fissile materials, and the redirection of former nuclear and biological weapons scientists, engineers, and technicians of proliferation concern.⁶²

The initiative built upon the successful threat reduction programs launched a decade earlier by Russia and the United States and committed the G8 to raising up to US\$20 billion over ten years to fund nonproliferation projects, initially in Russia, to mitigate the threat of WMD proliferation.

To date, more than a half dozen additional states have joined the original seven donors in the Global Partnership, and while pledges have yet to top US\$20

⁶² Group of Eight, “Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction,” Statement made in Kananaskis, Canada (2002), accessed at: <<http://www.g8.gc.ca/2002Kananaskis/globpart-en.asp>>.

billion, important progress has been made toward the objectives set out at the Kananaskis Summit.⁶³ For instance, Russia recently doubled its 2005 budget allocation for the destruction of its chemical weapons stockpile, solidifying its place as the second largest contributor to these threat abatement programs. Russia's announcement was important not only from a tactical weapons elimination standpoint; it also sent an important strategic message that Moscow was prepared to move from aid recipient to committed partner in implementation of the CNP agenda. The United Kingdom announced an almost US\$40 million investment for the construction of a nuclear waste storage facility to secure proliferation-prone spent fuel from nuclear icebreakers. Germany has agreed to spend US\$476 million over the next six years on a multi-part project to facilitate dismantlement of 120 submarines in Russia's Northern Fleet.⁶⁴ In

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secured pledges totaling just over US\$19 billion, about US\$1 billion short of the original target set by the G8 in 2002 (see Figure #11). While additional pledges will no doubt be forthcoming, the pace at which existing pledges are being converted into projects on the ground has been slow. As of last year, only sixteen percent (16%) of total G8 pledges had been appropriated by national legislatures and operationalized.⁶⁵

July of 2006, the Government of Canada announced over US\$133 million in new contributions including a planned contribution of \$100 million toward the construction of chemical weapons destruction facilities in Russia, an agreement to provide US\$21.3 million to defuel and dismantle three nuclear submarines in northwestern Russia, and US\$3.8 million for fifteen new redirect projects at research institutes in Russia and other countries of the former Soviet Union. As of July 2006, the Global Partnership has

⁶³ In addition to the original eight—Canada, the European Union, France, Germany, Italy, Japan, Russia, the United States, and the United Kingdom—Finland, the Netherlands, Norway, Poland, Sweden, Switzerland, Australia, Belgium, the Czech Republic, Denmark, Ireland, New Zealand, and South Korea have joined as donor participants in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

⁶⁴ For a thorough overview of state pledges to the Global Partnership see Strengthening the Global Partnership: Protecting Against the Spread of Nuclear, Biological and Chemical Weapons, available online at: <http://www.sgpproject.org/>.

⁶⁵ Finlay and Grotto, *The Race to Secure Russia's Loose Nukes* (2005): 47.

**Figure 11: Cumulative G8 Global Partnership Pledges
by Country as of July 2006⁶⁶**

Country/Organization	Pledge in US Dollars (approximate) †
Australia	\$7,603,000
Belgium	\$8,560,116
Canada	\$888,967,908
Czech Republic	\$225,000
Denmark	\$22,981,093
European Union	\$1,259,100,000
Finland	\$18,865,500
France	\$944,325,000
Germany	\$1,500,000,000
Ireland	N/A
Italy	\$1,259,100,000
Japan	\$200,000,000
The Netherlands	\$41,655,197
New Zealand	\$793,080
Norway	\$125,910,000
Poland	\$100,000
Russia	\$2,000,000,000
South Korea	\$2,700,000
Sweden	\$40,145,600
Switzerland	\$13,440,860
United Kingdom	\$750,000,000
United States	\$10,000,000,000
TOTAL	\$19,085,472,354

* Pledges/funds committed differ greatly among sources. This chart contains the highest monetary values noted in recent publications. † Dollar approximations are valid as of October 25, 2006.

Exchange rates were taken from the Federal Reserve Bank of New York.

UN Security Council Resolution 1540

AQ Khan's nuclear network revealed a yawning gap in the wherewithal of existing treaties and agreements to effectively address the role individuals motivated by ideology or greed might play in undermining global

⁶⁶ Vladimir Orlov and others, eds., *Guidebook: Global Partnership Against the Spread of Weapons of Mass Destruction* (Moscow: Human Rights Publishers, 2006): 36-38; Michèle A. Flournoy, "The G-8 Global Partnership: Successes and Shortcomings," Testimony before the Subcommittee on International Terrorism and Nonproliferation, United States House of Representatives (testimony given June 30, 2005), accessed at: <http://www.house.gov/international_relations/109/flou063005.pdf>; Global Partnership Working Group, "Consolidated Report Data: Annex A," *Annual Report 2006* (July 2006), accessed at: <http://www.ransac.org/documents/annex_to_gp_report_final-eng.pdf>; Strengthening the Global Partnership Project, "Global Partnership Scorecard" (July 2006), accessed at: <<http://www.sgpproject.org/publications/GPScorecard2006.pdf>>.

nonproliferation objectives. In order to help address this vulnerability and strengthen the global nonproliferation regime, the UN Security Council unanimously passed Resolution 1540, mandating all UN Member States to implement a set of supply-side controls and criminalize proliferant activities within their territories. The April 2004 resolution was introduced with great fanfare, marking the most significant opportunity since September 11th to pragmatically pair states-at-risk with the technical and financial assistance they require to conform to global nonproliferation norms. Even the Bush Administration, long criticized for shunning international cooperation, seized upon 1540 as a critical component of its security agenda. The resolution requires states to “criminalize proliferation, enact strict export controls, and secure all sensitive materials within their borders.”⁶⁷ The resolution also includes twelve points requiring all States to “adopt and enforce appropriate effective laws which prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery.” States must also develop and maintain “effective physical protection measures”, “border controls and law enforcement efforts” to address illicit trafficking, and “national export and trans-shipment controls.”⁶⁸

Despite early attention however, 1540 has neither received the continuous support of the United States nor the sustained attention of the international community requisite to move the resolution from a multifaceted mandate to an effective nonproliferation and capacity building toolkit. Ultimately, Resolution 1540 will be worthless without widespread, coherent implementation of its various obligations. Failure to advance 1540 also represents a missed opportunity to reinvigorate multilateral arms control and cooperation.

Global Initiative to Combat Nuclear Terrorism

For the past fifteen years, even within the context of the Cooperative Nonproliferation programs, the Russian Government has been seen predominantly as a near failed state requiring resuscitation by the Western victors. Therefore, 2006 was a critical milestone in Russia’s continuing transformation from the matriarch of an “evil” Cold War empire to a responsible member of the global community. In January of that year, Russia for the first time assumed the presidency of the expanded Group of Eight (G8) most industrialized democracies of the world.

⁶⁷ White House Office of the Press Secretary, “President Announces New Measures to Counter the Threat of WMD: Remarks by the President on Weapons of Mass Destruction Proliferation” (statement given in Washington: National Defense University, 2004), accessed at: <<http://www.whitehouse.gov/news/releases/2004/02/20040211-4.html>>.

⁶⁸ United Nations Security Council, “Resolution 1540 (2004)” (adopted on April 28, 2004), accessed at: <http://www.un.org/docs/sc/unsc_resolutions04.html>.

In keeping with its new obligations as a member of the G8, Russia has become the second leading contributor to the Global Partnership—a significant step given ongoing criticism of Moscow as an often opaque and mercurial partner. At the most recent summit in St. Petersburg, President Putin went one important step further, joining with President George W. Bush to announce the Global Initiative to Combat Nuclear Terrorism. The purpose of the Global Initiative is to enhance cooperation between willing partner nations to build capacity and combat the global threat of nuclear terrorism. An important corollary to UN Security Council Resolution 1540⁶⁹, the Global Initiative is designed to include systematic efforts to:

- improve accounting, control, and physical protection of nuclear material and radioactive substances, as well as the security of nuclear facilities;
- detect and suppress illicit trafficking;
- respond to and mitigate the consequences of acts of nuclear terrorism;
- ensure cooperation in the development of technical means to combat nuclear terrorism;
- ensure that law enforcement takes all possible measures to deny safe haven to terrorists seeking to acquire or use nuclear materials; and
- strengthen national legal frameworks to ensure the effective prosecution of terrorists.⁷⁰

While initially a bilateral effort with Russia, the Global Initiative is intended to grow to include other willing partner nations. Ultimately, the goal of the effort is to mobilize the largest possible number of nations willing to collaborate to improve national capabilities to combat nuclear terrorism through multinational exercises, expert-level meetings to share best practices, and, like UNSCR 1540, the provision of assistance from those nations in a position to offer such assistance to those nations requiring it.

The Global Initiative to Combat Nuclear Terrorism is as yet unproven and a reasoned opinion on its utility cannot yet be formed. It is also unclear as to whether the effort can become an effective mechanism for internationalizing the CNP agenda beyond the territories of the former Soviet Union. What is clear is

⁶⁹ UN Security Council Resolution 1540 is but one of several legal bases for implementation of the Global Initiative. The International Convention on the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material and Nuclear Facilities, UN Security Council Resolution 1373, as well as national legal authorities also provide important legal bases for implementation.

⁷⁰ State Department Office of the Press Spokesman, “US-Russia Joint Fact Sheet on the Global Initiative To Combat Nuclear Terrorism,” Media Note July 15, 2006, accessed at: <<http://www.state.gov/r/pa/prs/ps/2006/69016.htm>>.

that like other instruments in the nonproliferation toolkit, real and sustained political attention will be critical to transforming the Initiative from political bravado to an effective antiproliferation mechanism. Effective implementation of the Initiative must also learn the lessons of the CNP programs and work collaboratively across programmatic areas in order to achieve both near-term success and long-term sustainability.

FUTURE CHALLENGES

Despite the efforts of the United States, Russia, and the remainder of the G8, an enormous amount of work remains to be done before the WMD threat can be contained. As of the end of FY 2005 only sixty-four percent (64%) of FSU buildings containing nuclear material had undergone some type of security upgrade, and only forty percent (40%) of Russian warhead sites had completed their upgrades, leaving a large number of potential proliferation risks.⁷¹ Just thirty percent (30%) of reactors outside of the former Soviet Union have seen their HEU removed or any other measure of security enhancement. As of July 2006, DoD had deactivated only half of FSU warheads targeted by its dismantlement programs, and just eighteen percent (18%) of Russia's excess stockpile of highly enriched uranium had been eliminated.⁷² With the Nuclear Cities Initiative now defunct, only eight percent (8%) of Russia's Cold War nuclear weapons infrastructure has been eliminated. Of particular concern is the growing threat from the disengaged weapons specialists willing to sell their nefarious talent to the highest bidder—a threat which first came to light with the collapse of the Soviet Union and has since gone global. While up to eighty-five percent (85%) of the key FSU nuclear weapons scientists had been given short term grants, only an estimated thirty-five percent (35%) of the population of excess weapons personnel currently targeted by DoE has found sustainable civilian work through GIPP grants.⁷³ Thousands of scientists or workers with WMD expertise remain available to rogue states or terrorist groups looking to capitalize on that know-how. Even more disconcerting is a recent survey that found that approximately twenty percent (20%) of FSU weapons personnel would consider selling their expertise to a rogue state if the right offer were to

⁷¹ Matthew Bunn and Anthony Wier, *Securing the Bomb 2006* (Cambridge, MA and Washington, DC: Project on Managing the Atom, Harvard University, and Nuclear Threat Initiative, July 2006).

⁷² Defense Threat Reduction Agency, "CTR Scorecard: Strategic Offensive Arms Elimination," (updated on July 10 2006) accessed at:

<<http://www.dtra.mil/documents/oe/ctr/scorecard20060710.pdf>>; and Matthew Bunn and Anthony Wier, *Securing the Bomb 2006*.

⁷³ US Department of Energy, "National Nuclear Security Administration," *FY 2007 Congressional Budget Request* (Washington: Department of Energy, 2006): 497, accessed at: <http://www.cfo.doe.gov/budget/07budget/Content/Volumes/Vol_1_NNSA.pdf>.

become available.⁷⁴ Such a high percentage indicates that the proliferation of expertise is a high priority risk, yet it continues to be subordinated to other, politically popular programs that produce quicker, more quantifiable results.

Coordination difficulties among US Government agencies and with other country programs have sapped performance and at times stymied progress. The G8 Global Partnership has faced its own implementation silos and has not lived up to the promise of doubling resources and more rapidly closing the window of opportunity for terrorists seeking WMD capabilities.

These enduring challenges to existing nonproliferation efforts in the states of the former Soviet Union are also wedged between rising donor fatigue on Capitol Hill and increasing pressure to consider translating programs beyond the post-Soviet context—even while much remains to be done to secure the WMD threat in the FSU. Congressional support for CNP has fluctuated, hampering the efficiency and effectiveness of these critical national security programs. Indeed, Congress remains predominantly disinterested, often focused instead on more visible if less effective mechanisms to prove to Americans that their security is being addressed. Presidential support for Cooperative Nonproliferation has always been long on promise but short on delivery. If Executive and congressional support for Cooperative Nonproliferation wanes prior to completion of the mission, and before assurances of continuing host-country support are achieved, the global WMD proliferation threat will grow, and the consequences could prove catastrophic.

These enduring challenges to existing nonproliferation efforts in the states of the former Soviet Union are also wedged between rising donor fatigue on Capitol Hill and increasing pressure to consider translating programs beyond the post-Soviet context.

⁷⁴ Deborah Yarsike Ball and Theodore P. Gerber, “Will Russian Scientists Go Rogue? A Survey on the Threat and the Impact of Western Assistance,” Center for Strategic and International Studies (November 2004), accessed at: <http://www.csis.org/media/csis/pubs/pm_0357.pdf>.

GETTING FURTHER, FASTER: FINDINGS

The preceding analysis of existing CNP efforts, when juxtaposed with prevailing threat assessments, leads to the conclusion that nonproliferation programs, as currently configured, are not maximizing their potential return on investment. Much of the blame for these inefficiencies can be laid on the doorsteps of the host governments which have often proven to be fickle partners. Nonetheless, the United States Government has erected its own barriers to success. Below we group the impediments identified by this study into four broad categories: lack of interagency collaboration, unrealistic expectations, inefficient congressional oversight, and overly burdensome restrictions on program implementation. We further conclude that the programmatic barriers to success related to the scientist redirection portfolio are so vast and the threat so urgent, that a more in depth assessment of these efforts is needed.

PROMOTING INTERAGENCY AND BROADER INTERNATIONAL COORDINATION

The Cooperative Nonproliferation programs were launched in an era of extreme uncertainty across the states of the former Soviet Union. The immediate and rapidly changing needs of those governments now responsible for managing the defragmented pieces of the world's largest arsenals of nuclear, biological, and chemical weapons necessitated a flexible and responsive nonproliferation capacity. The early days of CTR implementation were characterized by a maverick attitude that produced astonishing advances in support of US national security priorities. Over time, as the security environment on the ground in the region changed, and as the capacity of states to respond to those changes improved, new programs were added to address shifting demands. In the fifteen years since the US programs were launched, no strategic review has been conducted to systematically assess current threats with existing programs.⁷⁵ This has yielded, in some cases, a mélange of programmatic efforts, some of which are pegged to dated threats, and others of which fail to fully leverage the opportunities provided by the spectrum of US Government programs and maximize return on our national security investment. With both the functional and geographic expansion of activities occurring at a rapid pace, the time is ripe for a thorough reassessment of threats and priorities related to the CNP agenda. Such a review should occur both at the Departmental level, as well as at a

⁷⁵ In 2001, the incoming Bush administration performed a review of these programs. Although coined a "strategic review," the outcome of this process did little more than affirm the value of existing efforts and approve the status quo.

broader strategic level across the US Government. Ultimately, it should also involve the US Congress as well as host state representatives.

Throughout the course of CNP efforts, interagency cooperation has frequently been driven by personalities rather than overarching nonproliferation priorities.

Many interdepartmental issues could be addressed through enhanced information sharing that builds upon the innate sense of purpose shared by program managers across the multiple CNP implementing departments.

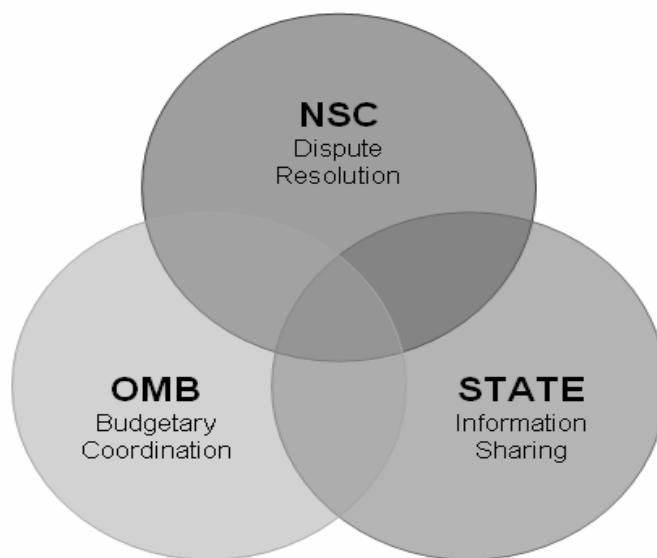
Interagency rivalries were an additional complication that many have assumed could be resolved through the appointment of a “nonproliferation czar.” According to numerous high-profile reports, this high-level White House official, sitting at the right hand of the President, would play “traffic cop,” ensure prioritization amongst competing demands, and enforce solutions to interagency disagreements. The *Defense Against*

Weapons of Mass Destruction Act of 1996 (the aforementioned Nunn-Lugar-Domenici bill), mandated the creation of this position, but the Clinton administration ignored this provision. Although a similar requirement can be found in several bills introduced in the 109th Congress, the Bush Administration has also made it clear that it would not comply with a congressional mandate regarding the organization of its national security staff.⁷⁶ Thus, without even judging the operational utility of the concept, we conclude that it remains politically untenable. Near universal agreement across the implementing agencies suggests that the “czar” is neither necessary nor particularly desirable. Rather, we find that many interdepartmental issues could be addressed through enhanced information sharing that builds upon the innate sense of purpose shared by program managers across the multiple CNP implementing departments. Entrenched interests within the Executive agencies and within existing Capitol Hill committees make centralized direction over competing programs not only difficult, but virtually impossible. A politically and structurally more sensible route would be the designation and funding of a State Department official responsible for information collection and sharing across all

⁷⁶ These bills and their sponsors include: H.R. 422, *The 9-11 Commission Combating Proliferation Implementation Act*, sponsored by Representative Ellen Tauscher (D-CA), Section 101, <[http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.422:>](http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.422:); H.R. 665, *The Omnibus Nonproliferation and Anti-Nuclear Terrorism Act of 2005*, sponsored by Representative Adam Schiff (D-CA), Section 3 <[http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.00665:>](http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.00665:); and; H.R. 5017, *Ensuring Implementation of the 9/11 Commission Report Act*, sponsored by Representative Christopher Shays (R-CT), Section 323 <[http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05017:>](http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05017:).

CNP activities/agencies.⁷⁷ This non-threatening position would go far toward resolving coordination challenges between, and in some cases, within the Departments of Defense, Energy, and State. When intractable conflicts between government departments do arise that cannot be handled by the collegial process managed by the State Department, a knowledgeable and hands-on NSC official should be capable of resolving the lion's share of these interagency problems. This office would serve, as it were, as the court of last resort with access up to the Oval Office and with strong connections to Congress. Across the US Government, priority setting and coordination from the strategic planning perspective revolves around the budget process. At present, one Office of Management and Budget (OMB) staff member is charged with overseeing DoD and DoE nonproliferation activities while another controls State funding. A central coordinating position should be established within OMB to absorb all US Government nonproliferation programming to ensure financial needs are addressed prudently and in priority order (see Figure #12).

Figure 12: Proposed Tripartite Structure for Budget Management, Information Sharing, and Dispute Resolution



The discussion of a US Government information clearinghouse for all CNP activities gives rise to another information sharing need that is not yet being met.

⁷⁷ In 1992, the *FREEDOM Support Act* created an NIS Coordinator position at the Department of State to synchronize all US Government assistance to Russia. This position met with limited success in large measure due to the sheer volume of initiatives ongoing simultaneously. This position would not actively seek to coordinate policy, but rather serve as a passive information clearinghouse.

Both Department of Energy and Defense Department officials suffer from a lack of data on other countries' activities under the Global Partnership. On visits to host country sites, US officials are frequently surprised to learn that representatives from other Global Partnership contributing states have passed through to discuss similar programs or objectives. In short, not only do US Government officials—usually but not exclusively from different agencies—find themselves stumbling across one another in the field, but the advent of multiple countries implementing nonproliferation efforts in the region has increased the likelihood of being blindsided by another country's efforts at the same site. This has been promoted by an emerging competitiveness between participating G8 countries to execute projects under national banners as a proviso for expending state funds. Although the State Department does have a point person for coordination of Global Partnership efforts, other US agencies are often unaware of this office's existence and, therefore, have not exploited its critical role.⁷⁸

PROMOTING INTERAGENCY AND OTHER INTERNATIONAL COLLABORATION SUMMARY OF FINDINGS

- CNP efforts were born in an era of extreme uncertainty in the FSU. Programs have not evolved to meet changing demands. The time is ripe for a full review of all activities to ensure proper prioritization and leveraging.
- Calls for the creation of a nonproliferation czar, even if prudent, are politically infeasible.
- Parochial interests within the implementing agencies must be broken down to ensure appropriate prioritization of activities and budgets.
- A trilateral structure composed of an information clearinghouse at the Department of State, a budgeting oversight office within OMB, and a “court of last resort” at the NSC would be both politically palatable to the agencies and promote maximum return on investment.

MANAGING EXPECTATIONS

At the macro level, CNP efforts have weathered numerous headline “crises” in the US-Russia relationship—for instance, Senate ratification of NATO expansion in 1998, the bombing of Serbia in 1999, US withdrawal from the Anti-Ballistic Missile Treaty in 2001 and so on. In most cases, this occurred with only minor delays in activities on the ground. This is testament to the program managers’ ability to build trust with their former Soviet counterparts

⁷⁸ The implementing agencies have at times sought to develop *ad hoc* mechanisms to correct for the dearth of information available both across agencies and internationally under the Global Partnership. For instance, the Global Initiatives for Proliferation Prevention (GIPP) at NNSA works closely with their Global Partnership counterparts, in particular Great Britain, Canada, and the European Union. The Russian Government has openly expressed uneasiness over this coordination occurring outside of bilateral Russian channels.

and a resilience of efforts based on mutually identified objectives. Nonetheless, the critical role these programs play for overall US defenses against WMD terrorism suggests that greater care must be taken to ensure that subservient foreign policy goals do not unnecessarily trump CNP implementation. Wherever possible, the Executive agencies should work through the NSC to better integrate CNP programs with other US government operations affecting the region. They should also work assiduously to brief Capitol Hill on their activities to minimize legislative restrictions on program execution.

We further conclude that the atmosphere of mutual mistrust at the strategic level has been heightened on the Russian side by a US tendency to over-promise and under-deliver on CNP initiatives. Even if this is due to congressional actions regarding a policy or budget allocation over which program managers have little control, it remains an ongoing liability in building the necessary trust to ensure forward momentum. There is a clear understanding within the US Government of the need to account for each host country's threat perceptions and objectives. Joint planning involving the US Government and Russian or other FSU partners would not only facilitate progress, it would enhance the prospects of sustainability. Only recently have program managers undertaken to offer training to host country officials regarding the bureaucratic requirements within US law for programs to proceed and for funds to be released. When these guidelines are made clear at the outset, program implementation occurs much more effectively as host states understand the processes at play and are better prepared for delays. Conversely, when the terms are not established clearly at the outset, efforts are often plagued by host country misunderstanding, recalcitrance, and obfuscation.

We also find that a persistent hitch in the cooperative nature of CNP activities has been the lack of reciprocity in American demands for access to sensitive sites. Numerous earlier assessments of CNP programs have made calls for a shift in these efforts toward greater partnership by providing similar access to US facilities. To date, however, calls for "true partnership" were simply unrealistic in light of these efforts being funded wholly by Washington. In these cases, the US has had good reason to require transparency or access from the Russians that would not be reciprocated. As Russia begins to put its own money toward these programs, however, an opportunity arises to achieve greater balance in the relationship and thus establish a true collaborative partnership based upon parity of interests and goals. Enhanced Russian ownership over the programs will also increase the potential for long term sustainability once US Government investments end.

MANAGING EXPECTATIONS
SUMMARY OF FINDINGS

- CNP programs operate at peak efficiency when trust and transparency are maximized.
- Joint planning at all stages of program development and implementation fosters a sense of partnership that has proven crucial to program success.
- The Executive agencies should work both at home and abroad to ensure the broad coordination with other US foreign policy objectives and the sustained buy-in of Congress and host governments.

RETHINKING CONGRESSIONAL OVERSIGHT

We conclude that while implications of congressional scrutiny differ, the current form of congressional oversight of CNP programs is problematic for all three implementing agencies. Program managers from DoD, DoE, and State suffer under the strain of excessive reporting requirements. Competing with their responsibilities for day-to-day management and oversight of their complex and geographically disparate programs is a large number of congressionally-mandated reports whose purpose is often unclear but whose completion requires a significant investment of time. To the extent that many program implementers are already stretched thin by managerial, contracting, and other administrative requirements, the additional time consumed with reporting in written form to congressional committees is, in most cases, excessive and a potentially poor use of personnel capacity. While generally available to all offices, most reports are read by only a select few interested offices. As a result, the information contained therein, which comes with a significant investment of managers' time, is not transmitted in an effective form to the widest possible audience. We find that presenting opportunities to brief staffers at regular intervals would be a much more efficient use of both program managers' and congressional staff time and likely would be of greater utility to a wider array of Members and their staffs. Presenting information orally has the added benefit of delivering nuance more effectively, developing personal relationships between agencies and congressional staffers, and, overall, promoting the programs to a wider Capitol Hill audience.

With respect to nonproliferation programs at the Department of Energy, most Members and their staffs on Capitol Hill do not appear to sufficiently understand or value the role that the National Laboratories perform in the DoE/NNSA's nonproliferation efforts. Seldom, if ever, are Laboratory officials invited to brief Hill staffers beyond their own Representative or Senator's offices on the nonproliferation work they are undertaking. Furthermore, few people on the Hill understand that the scientist-to-scientist relationships promoted by the Lab

programs frequently provide the foundation upon which broader cooperation is built. In sum, the lack of opportunities for officials from the National Laboratories to brief Members and their staffs on Capitol Hill regarding their role in the implementation of these programs is a severe impediment to congressional understanding of the DoE/NNSA programs, and detrimental to congressional perceptions of the Laboratories' value. Simultaneously, to the extent that the only Members touting the importance of the Laboratories in CNP efforts and supporting the budgets for their work are those who represent them, others in Congress cynically equate the Laboratories' role in nonproliferation efforts to local "job creation."

Our research found that the metrics used by Capitol Hill in their assessment of program strengths or weaknesses do not allow for sufficient nuance regarding some of the longer-term positive impacts and less-tangible benefits derived from the initiatives. In short, the political necessity to display "impact" and national security benefits are at direct odds with the nature of these programs as cooperative efforts to pursue long-term sustainable security. As a result, unless a clear linear relationship can be drawn between appropriation and outcome, many Members would be more likely to invest in the "quick fix" options—such as investment in border radiation detectors at US ports—even if, in the long run, they are both more costly and less effective than other more enduring approaches. The agencies, along with their private sector counterparts, could play a critical role by highlighting for Congress, clearly and consistently, the tangible benefits derived from CNP investments.

Despite the minimal appropriations dedicated to CNP, a survey of congressional activity suggests evidence of earmarks which frustrate planned agency activities. Given that program implementation funds are stretched exceedingly thin in most cases, the presence of pork-barrel earmarks disproportionately skews managers' ability to pursue focused programming. The US\$10 to US\$15 million annual appropriations earmark over the past several years for, "dismantling and disposal of nuclear submarines, submarine reactor components, and security enhancements for transport and storage of nuclear warheads in the Russian Far East" provides a glaring example of how congressional mandates targeting scarce funds can negatively impact CNP priorities.⁷⁹ By diverting funds without the benefit of broader priority setting, lower-tier threats are addressed in advance of top-tier concerns.

⁷⁹ The earmark for activities in Russia's Far East actually dates back to Fiscal Year 1998 and was originally set at US\$35 million annually. See Defense Appropriations Acts from FY 1998 through FY 2006.

Like virtually every other venue for government appropriation, earmarks designed to bring benefit back home are not the only dynamic warping congressional appropriations. While many congressional offices offer little more than supportive lip-service to CNP efforts, there remains an impetus within the numerous oversight committees to “put a stamp” on nonproliferation activities. Unfortunately, these sporadic attempts to provide strategic or even tactical level direction often come without sufficient understanding as to how they impact program implementation. Consequently, we conclude that earmarks and non-strategic funding mandates should be minimized wherever possible so that longer term strategic planning can identify and pursue the most urgent national security threats in order of priority.

Finally, while it is clear that more money would translate into faster progress across many programs, oftentimes big boosts to a specific program through an emergency supplemental have not always been matched by additional personnel capacity at the agency to efficiently execute enhanced funding—or to garner host government buy-in to permit expanded activities. In many instances, large increases in budgets without sufficient staff capacity within the agencies leads to inadequate oversight and a dilution of program focus. Furthermore, internal struggles over how the additional monies are allocated across different facets of the program can create destabilizing debates within government departments. Additional funding would certainly signal heightened political attention for these programs, and increase the leverage the implementing agencies have over their host country sponsors, thus accelerating these efforts. Any budgetary plus-ups must, however, account for additional staffing needs to ensure appropriate oversight, effective implementation, and sufficiently incorporate the programs into broader, government-wide strategic planning.

***RETHINKING CONGRESSIONAL OVERSIGHT
SUMMARY OF FINDINGS***

- The implementing agencies (DoD, DoE and State) all suffer under the burden of congressionally-mandated reporting requirements.
- Reports are not received in a form conducive to Capitol Hill’s absorptive capacity for information.
- Capitol Hill’s need for rapid quantifiable progress is at odds with the very nature of the programs, and this gulf will widen as programs transition from infrastructure elimination to capacity development.
- The use of earmarks and the desire to “put a stamp” on CNP efforts may ultimately hinder program implementation.
- Additional funding should be dedicated only after careful integration across US Government programs and consideration of agency capacity.

ELIMINATING PROGRAMMATIC RESTRICTIONS

Despite weak appropriations and scant political attention paid to the nonproliferation agenda, quizzically, CNP programs have inspired a disproportionately large number of both internal governmental and external academic studies of their efficacy. More unfortunate still has been the Inspector General and GAO's penchant to focus on process rather than on outcome within the context of these reports. Prone as such assessments are to pointing out programmatic inefficiencies absent the broader context of success, an enduring perception has been left with Congress and even many within the White House of a cacophony of disorganized efforts spread across multiple departments that fail to produce much tangible effect. Regrettably, the result has been a willingness to respond reflexively to negative reports with often ill-conceived new restrictions on program implementation. After fifteen years of operation, the Cooperative Nonproliferation programs have collected an overly burdensome series of legislative and executive driven impediments to the implementation of their mandate. As a result, long gone are the early days of CTR where program managers had the flexibility and capacity to respond quickly to opportunities and threats on the ground—a debilitating loss of innovation and rapid reaction capability.

In sum, while additional funding would most certainly accelerate the pace with which the terrorist threat is being addressed across the states of the FSU and globally, the single most important element remains the lifting of onerous impediments on program managers. Today, these include budgetary caps on the transfer of funding from program to program, dated contracting mechanisms, and a series of certification requirements that each year threaten the future of the full suite of CNP programming. Congressional oversight and proper management of the programs within the agencies are critical, but the totality of these requirements have become stifling, threatening the vitality of US Government efforts to ensure that the world's most dangerous individuals do not obtain the world's most dangerous weapons.

ELIMINATING PROGRAMMATIC RESTRICTIONS SUMMARY OF FINDINGS

- All three implementing agencies (DoD, DoE and State) suffer under the burden of congressional and departmental impediments.
- Over time, these impediments have threatened the flexible nature of nonproliferation programming.
- Many of these restrictions could be rethought or adjusted without a deleterious effect on congressional oversight or program management.

PROMOTING SUSTAINABLE SCIENTIST REDIRECTION

The threat posed by excess weapons and materials, while awesome in its scope, was dwarfed in its complexity by the problem of nefarious technology transfer by under- or unemployed FSU weapons experts (see Box #1). The plight of the former Soviet weapons community was indicative of the widespread inability of Russia and the other FSU states to support the massive Soviet weapons complex that they inherited. Within the first year after the collapse of the USSR, life for this once sacrosanct community of scientists, engineers and technicians was irrevocably altered. Tens of thousands lost their jobs or went months without a paycheck. Even the brightest scientists and engineers were forced to seek work where they could get it—whether driving taxi cabs or selling their talents to foreign governments or terrorist organizations.⁸⁰ All told, Russia's ten closed

Unfortunately, none of the existing programs is designed to systematically create the new jobs necessary to sustainably engage weapons experts.

nuclear cities employed more than 150,000 nuclear scientists and engineers.⁸¹ In addition, 65,000 biological warfare specialists and more than 6,000 chemical weapons experts were employed by the Soviets massive WMD complex.⁸² All were capable of spreading critical components of sensitive information to hostile groups and

states. Given the poor economic performance of Russia and other FSU countries, many scientists who could not find jobs elsewhere faced a literal choice: go hungry or sell your expertise to the highest bidder.

The stated objective of all current programs focused on the nonproliferation of expertise is to permanently redirect to peaceful employment these former WMD specialists. Unfortunately, as currently configured, none of the existing programs is designed to systematically create the new jobs necessary to *sustainably* engage weapons experts and thus achieve this objective. Meanwhile, it is this subset of the CNP effort that is addressing the acute and growing need from a proliferation threat standpoint. Ultimately, the excess weapons and materials of proliferation concern throughout the FSU will be consolidated, secured, and eliminated. The diffusion of knowledge is a far more intractable threat whose reach goes far beyond the FSU. The invasion of Iraq did not unearth weapons of mass destruction or even their immediate precursors.

⁸⁰ Ken Alibek, *Biohazard* (New York: Random House, 1999): 270-279.

⁸¹ Landau Network-Centro Volta, "Analysis: International Cooperation Programs and Russian Nuclear Cities: Future Initiatives, Drawbacks, Strategies and Europe's Role," International Working Group General Secretariat (February 11, 2002): 3, accessed at: <http://www.mi.infn.it/~landnet/ENCI_BRUX/Martellini.pdf>.

⁸² Amy E. Smithson, *Toxic Archipelago* (1999).

It did, however, uncover a stable of scientists whose knowledge and capacities could present significant challenges to international security. Today, we find that the United States Government stands without a coherent, long-term strategy in the face of this threat.

Critical to programmatic success of early redirect efforts was the immediate engagement of a massive scientific community whose expertise, if proliferated, could have significant negative implications for terrorist and rogue state access to weapons of mass destruction. Put crudely, the programs were designed to keep sensitive scientific capacity in place and provide some degree of accounting for the individuals of proliferation concern and their activities. Parallel programs were launched to shut down or eventually “graduate” legacy weapons R&D and production facilities from US Government assistance to self-sufficiency. As part of this emergency response effort in the early 1990s, little thought was given to long-term sustainability. Provided experts were not using their talents to inform weapons programs abroad, the policy objectives of the US Government were being met.

More than a decade later, the environment in Russia and other states of the former Soviet Union has changed dramatically. Newfound wealth derived from a flourishing oil and gas industry in many of these states has made host states far less dependent upon Western assistance—though no less a proliferation concern. With increased host-state resources, lack of clarity over the enduring threat posed by the former weapons community, complicated metrics in measuring program impact, and ever restrictive budgets within the donor community, it is increasingly difficult for the existing programs to justify continued support. Nonetheless, the proliferation threat remains, and may be growing with a new generation of talented yet disengaged scientists in the FSU. Inventive new models are overdue and must be developed. At a minimum, account should be taken of the lessons learned through more than ten years of redirect programming.

Our preliminary analysis reveals that current and previous redirect efforts were designed to produce one of two outputs leading ultimately to redirection: (1) collaborative research and technology development, or (2) restructuring of state-owned weapons institutes and production facilities. To understand why these approaches do not lead to sustainable employment, and what lessons can be drawn from these programs for future approaches, we offer below a systematic accounting of existing redirect efforts along with an assessment of their shortcomings.

Collaborative Research and Technology Development Approaches

This approach to redirection is based upon the belief that the provision of short-term grants to develop collaborative ties between the scientific community of the US and that of the host country will lead to the development of productive and lasting relationships. In most cases, these efforts have gone far to develop a sense of trust and partnership between the US and host governments that has benefited CNP efforts across the board. These models are, however, experiencing difficulty creating *sustainable* jobs for the target community because they have failed to identify and engage *employers* for the redirected WMD specialists. Under these programs—which include the Science and Technology Centers, the Bio-Chem Redirect Program, the Biological Threat Reduction Program at the Pentagon, and the Initiatives for Proliferation

The inaccessibility of many of the ISTC-funded scientists has given rise to suspicions within the donor community, and particularly within the US Congress, that funds are being diverted for weapons-related purposes rather than in service of the nonproliferation mission.

Prevention—the moribund weapons institutes effectively “house” the scientists for employment by the donor governments through a collaborative grants process. Targeted researchers in the FSU serve as temporary workers to Western *clients* through the grant period. The former weapons institute continues to host and supervise the grantee. Rarely is the former weapons researcher hired by the client upon completion of the project, which means that the US or one of the other G7 governments

must continue to support research through new grants. None of these governments are or want to be long-term *employers*. Even in the case of the Initiatives for Proliferation Prevention, which by design has integrated the private sector into its programming, the “partner” companies serve as *customers* of the weapons institutes that continue to not only house, but formally employ the research teams.

The State Department’s initial foray into these critical national security efforts was the establishment of the Science and Technology Centers (STCs) in Moscow and Kiev. While the STCs have been largely successful in keeping the scientists in place at their former weapons institutes, and providing short-term financial means to survive, efforts to find sustainable commercial opportunities for the target population have confronted an array of potentially insurmountable structural hurdles to sustainability. In large measure, this is due to a decision at the point of program inception to funnel redirect funds through the STCs and

into the erstwhile weapons institutes where scientists of proliferation concern could be engaged in benign activities. The inaccessibility of many of the ISTC-funded scientists has given rise to suspicions within the donor community, and particularly within the US Congress, that funds are being diverted for weapons-related purposes rather than in service of the nonproliferation mission.

In most instances, the ultimate purpose of funded scientific activities within the institutes remains ill-defined, and their output is seldom if ever valued by paying customers. It is even more rare that it leads to sustained employment. Even the advent of an industry partners program ostensibly designed to marry the scientific community with the private sector has failed to systematically pull the target constituency out of their institutes and into commercially viable private enterprises. This, combined with the historical trend to fund basic research without strong market pull has resulted in relatively few commercial opportunities arising out of the STC investments by donor countries—and therefore, few instances of sustainable redirection.⁸³ Instead, the lion's share of scientists thus far engaged by the STCs require additional grants in order to remain employed by their host institutes. Once donor country investments to the STCs cease—as they inevitably will—the brain drain threat from the region is likely to resurge. Both the ISTC and the STCU are attempting to develop new tactics that will lead to the institutional sustainability of the Centers, as well as to more long-term and sustainable employment for the target community.

Unfortunately, as currently configured, they lack the clarity of ownership and purpose necessary to accomplish these goals, which requires a customer-oriented, efficiently managed operation that neither the STCs nor the institutes that continue to house the scientists were designed to provide.

To address the STC's failure to create valued outputs from funded research, the State Department has launched an effort to identify common interests across other US Government agencies. Through the Bio-Chem Redirect program, the State Department has attempted to engage these agencies as *consumers* of the WMD scientists' research services by creating a network of initiatives at the Department of Health and Human Services, the Department of Agriculture, the

The absence of private sector actors as long-term employers of this talent means that government funding will be required for as long as it remains in the US interest to provide stable employment to this group of scientists.

⁸³ The ISTC today receives external contributions from the European Union, the United States, Japan, Norway, Canada, and the Republic of Korea. See: <<http://www.istc.ru/>>.

Food and Drug Administration, and the Environmental Protection Agency that seeks to leverage their needs with the talent resident in the erstwhile weapons institutes throughout the FSU.⁸⁴ In this regard, while funded ultimately by State, the collaborating agencies assume the role of sustained “clients” of the former weapons specialists. Under this model, the US Government is creating demand and redirected capacity by directly funding research. The absence of private sector actors as long-term *employers* of this talent, however, means that government funding will be required for as long as it remains in the US interest to provide stable employment to this group of scientists. While these collaborative research projects among different federal agencies have vast potential to productively engage the pool of scientific talent in the region in direct support of DHHS, EPA and other government agency goals, such efforts are unlikely to yield sustainable employment unless their activities can be diversified and expanded to serve the core mission of the US agency. Anecdotal evidence suggests that existing projects, which remain wholly funded by the Department of State, have thus far not fostered the deep-seated interest within the other collaborating agencies necessary to sustain the patronage of DHHS or EPA once State funding is eliminated. Nor has the program managed to draw individuals out of the former weapons institutes in any meaningful way to increase transparency and allow the host governments to begin rationalizing the bloated network of former weapons research facilities in their countries. In other words, the utilization of this scientific capacity for peaceful pursuits will only continue so long as there is State Department funding to support such collaboration. When funding is terminated, the benefits of these short-term engagement schemes for the collaborating agencies of DHHS, EPA, and Agriculture, will likely end.

Alternatively, the Biological Threat Reduction Program (BTRP) program at the Pentagon provides an interesting model for leveraging the talent on an ongoing basis for US and international disease surveillance needs. The mission of the BTRP program has evolved significantly since its inception. As the Defense Department has provided equipment and security training for former biological weapons scientists throughout Central Asia, the BTRP program has also sought to create a network of scientific expertise to form the basis of an “early warning” system for emerging infectious diseases throughout the region. While some perceive that more needs to be done in order to provide additional opportunities for the scientific enterprise in these states, the starting premise of incorporating that talent to meet an *ongoing* and *sustainable* demand—albeit one that will

⁸⁴ For example, in 1998, at the request of and with funding provided by the US Department of State, HHS developed the Biotechnology Engagement Program (BTEP) to engage former biological and chemical defense scientists in the Russian Federation and other states in the former Soviet Union, to participate in collaborative research on applied high-priority public health problems. For more information go to: <<http://www.btep.net>>.

require ongoing US Government or other international support—is an important step in the right direction. In short, it can be imagined that the US Government—though not likely the Department of Defense—could act as a permanent and sustainable employer for a targeted group of highly skilled FSU scientists and researchers engaged in ongoing global disease surveillance efforts. Like BCR, however, it is unclear if there will be continuing patronage of these surveillance networks by either the local or international public health bureaucracies.

The US Department of Energy’s IPP program has gone further than any of the others to engage the private sector in its efforts to create sustainable employment. By linking FSU scientists with industry partners, the IPP—which the Congress has renamed under its Global Security Engagement and Cooperation program in FY 2007—attempts to establish commercially viable opportunities that will lead to employment.⁸⁵ Unfortunately, like the others, it has engaged companies primarily as customers rather than as employers of the WMD specialists. In the pursuit of “sustainable” employment, IPP has mistakenly assumed that “company” was coterminous with “employer.” This has proven to be the exception not the rule and is due in large part to the way the program is structured.

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At the heart of the program are the US National Laboratories and the US Industry Coalition (USIC), a nonprofit association of the private sector participants chartered by Congress and funded by DOE, which essentially manage IPP on behalf of NNSA. To their credit and the benefit of the program the Lab personnel have often developed and maintained long-term relationships with individual FSU institutes. Lab personnel recruit the corporate participants, manage the application process, and then oversee the work undertaken by the targeted FSU scientists. The research however is done *within and under the control* of the former weapons institutes, rather than through IPP’s Industry Partners who, though they make in-kind contributions, rarely make direct

⁸⁵ United States Industry Coalition, “Reducing Proliferation Risks” *IPP Program*, accessed at: <<http://www.usic.net/usic/test1.nsf/Links/Reducing%20Proliferation%20Risks>>.

payments for the FSU researchers' work—that is done by the DoE. Further limiting the value of the companies' participation is the fact that often private sector partners have little or no control over the activities of the individual scientists involved, and in some cases, do not even have direct access to them.

Nevertheless, IPP has made considerable progress in demonstrating the significant nonproliferation and economic benefits that can be realized from effective engagement of companies as employers.

Nevertheless, IPP has made considerable progress in demonstrating the significant nonproliferation and economic benefits that can be realized from effective engagement of companies as employers. For instance, an IPP project launched in late 1997 with a Florida firm Bionucleonics Pharma has fostered a string of unprecedented successes for this start-up pharmaceutical firm

including establishment of the first ever FDA-approved Active Pharmaceutical Ingredient (API) manufacturing facility in Russia, market introduction of the company's first FDA approved drug utilizing the Russian API, and creation of new jobs and profits for both US and Russian partners.⁸⁶ Similarly, Danbury, Connecticut-based firm RWE NUKEM, Inc, a uranium trading company with a rich history of work in the Former Soviet Union is working with three other IPP partners to spearhead a profitable US-Kazakh partnership that is, at its essence, a "nuclear recycling" program. Overall, 16,000 specialists at over 180 institutes have been engaged by IPP.⁸⁷ Though with almost \$200 million spent to date fewer than 3,000 jobs have been created. Nonetheless, by virtue of expanding the network of relationships between US and Russian scientists alone, the IPP program has been a successful, useful, and innovative experiment.

Restructuring of state-owned enterprises

Parallel to models of engagement that sought to develop collaborative ties between the scientific communities in the United States and the FSU are a series of programs that have worked to manage the legacy infrastructure of former weapons facilities—and by extension the individuals employed by those facilities. Under these programs—the terminated Defense Conversion Program at the Pentagon, the BII at the Department of State, and the recently defunct NCI at the Department of Energy—the US Government sought the mutually reinforcing objectives of eliminating a specific weapons production line,

⁸⁶ United States Industry Coalition, "Success Stories", accessed at: <<http://www.usic.net>>.

⁸⁷ Ibid.

creating sustainable jobs, and introducing new technology and industrial capability to the region.

The Defense Conversion program at DoD was the first attempt at restructuring former weapons facilities in the FSU. The program exemplified the mixed results of this approach, simultaneously achieving sporadic successes amidst abject failures. The program focused on weapons production facilities rather than scientific research institutes. Approximately sixteen joint ventures between US companies and the former weapons plants were funded through grants of up to US\$5 million each. Of these, only a handful succeeded in being converted to peaceful commercially operated facilities. In addition to the primary objective of eliminating a specific weapons production line, a small fraction of projects created commercially sustainable jobs, and introduced new technology and industrial capability to the region. They also provided extensive training in business management, quality assurance and quality control. Every nonproliferation program dealing with human capacity has undertaken to engage in skills transfer. In the case of Defense Conversion, a small number of cases yielded immediate and productive application of the training for commercial purposes. In one case, as the converted factory grew, it created demand for goods and services that supported other companies in the local economy, thus broadening the economic development impact of the program (see Box #4). Because of the hostile nature of the local business environment, management was constantly advocating for changes in both the laws that affected their operations, as well as how those laws were enforced, thus becoming a vociferous agitator for the rule of law.

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Box 4

**BYELKAMIT: SUCCESSFUL REDIRECTION
THROUGH DEFENSE CONVERSION**

Byelkamit is one of the US Government's most successful redirection efforts. In 1994, as part of the Pentagon's Defense Conversion program, the Department of Defense issued an open request for proposal (RFP) to industry for proposals of up to US\$5 million to establish new business operations in a defined list of former Soviet weapons plants. Byelcorp Scientific, Inc. (BSI) was awarded a US\$3 million contract in 1995 to convert a Kazakh weapons factory that produced nuclear-armed torpedoes into a factory that would make cryogenic storage vessels for the European industrial gas industry. Unique among the Defense Conversion projects, BSI negotiated a seventy-five percent (75%) ownership stake in the joint venture that was formed between it, its Italian subsidiary Supco Sr. and the Kazakh State Property Committee. Over the next two years, BSI and Supco Sr., which had a long history of fabricating equipment for and erecting refineries in challenging environments such as Iraq and Libya, completely restructured the factory both physically and culturally to produce Western code certified products for existing European customers.

Because of the chaotic nature of a region in steep economic decline following the collapse of the Soviet Union, and the lack of Western code certified materials on the local market, everything that Byelkamit used to fabricate its products had to be imported from Western Europe. To do this BSI and Supco established their own trucking companies to ensure that materials actually made it to the factory and finished vessels made it back to Italy.

However, BSI did not choose to establish a new factory in remote Kazakhstan in order to export heavy industrial products to Europe. Although labor costs were significantly lower than in Italy, they were not lower than in Belarus, where Supco had another workshop. More importantly, transportation costs (even with its own fleet of trucks) and the endless problems and inefficiencies of establishing a factory in such a hostile business environment made the savings much less than would justify a high risk venture of this sort. The strategic reason for BSI/Suepo to take over the Kazakh factory was the promise of significant growth in Kazakhstan's oil and gas sector due to massive inward investment by the multinational oil companies. Restructuring the plant to produce the existing cryogenic product line for European customers prepared the plant to manufacture the more complex and varied vessels for oil and gas processing and made it possible to survive long enough to develop this new market, which Byelkamit has done very successfully over the ensuing decade.

From the US Government's perspective, the return on investment achieved went far beyond redirecting the former weapons plant. In an unexpected development, Byelkamit became the primary supplier of equipment for a US Department of Energy nonproliferation project in Kazakhstan in which a breeder reactor that produced large amounts of plutonium was permanently shut down, while significant volumes of plutonium bearing fuel assemblies were secured in canisters fabricated at the new factory.¹

¹ Authors' interviews with senior management, BSI, February 20, 2006.

Finally, the plant also fabricated virtually all the equipment needed to shut down a local plutonium-producing reactor in a subsequent nonproliferation project undertaken by the US Department of Energy. Ideally, this sort of synergistic activity would be designed into future nonproliferation programs. The return on investment from this modest US\$3 million grant has been extraordinary. Regrettably, this example was not indicative of other Defense Conversion efforts which generally suffered from a lack of business acumen, insurmountable hurdles erected by the host government, a lack of ownership, or unforeseen and massive cost overruns associated with the conversion effort.

Defense Conversion proved to be a costly failure for DoD, but the program offered a rich series of lessons. Replicating the success of the model of defense conversion while avoiding its shortcomings should be the goal of US Government efforts to introduce sustainability and coordination to scientist redirection. According to the businesses surveyed by the Stimson team, above all, successful engagement requires a business structure with clear ownership and the managerial expertise and organizational capacity to ensure that the facility's human and material resources are efficiently engaged in producing value for a reliable stream of paying customers. As a practical matter, this means recruiting companies with a strategic reason for entering the former Soviet Union, and with existing products or services that can be competitively produced for an existing customer base. They must also be ensured sufficient ownership of the restructured facility to manage it on a commercial basis. Joint ventures and partnerships with state-owned enterprises or institutes have consistently failed.

Replicating the success of the model of defense conversion while avoiding its shortcomings should be the goal of US Government efforts to introduce sustainability and coordination to scientist redirection.

Ownership has proven to be critical on a number of levels. Without complete commercial control of the venture, it is not possible to operate competitively, and therefore, with some measure of assurance that the jobs created will be sustainable. Ownership is also important in that the foreign company has something to gain or lose based upon the success or failure of the venture. Ultimately, the greatest value realized by establishing a business is not through its operation but its sale. A company that is building equity is likely to be much more committed to overcoming myriad obstacles to ensure success. Providing

private enterprise with a stake in the success or failure of the venture is therefore critical.

Another major challenge for the Department of Defense team was distinguishing between companies with the requisite capabilities and commitment from those seeking short term financial gain. When the companies met the criteria above, not only did DoD succeed in taking a weapons plant out of the global arms market and redirecting talent of proliferation concern, as it did with Byelkamit, it created strategic value for meeting other foreign policy objectives in nonproliferation and economic development.

In recognition of existing STC and BCR impediments to sustainable redirection, and the growing concerns about biological weapons proliferation, the State Department created the BioIndustry Initiative to bring commercial actors into the fold and generate opportunities for unemployed or underemployed bioweaponeers. While BII is a step in the right direction, this effort, like the STCs, appears to face formidable difficulties in creating widespread opportunities for sustainable commercial employment. Because BII remains a relatively new program, its efforts have yet to bear significant fruit; however, structural limitations similar to Defense Conversion will likely limit long-term success. To date, the focus of BII has been on facilities restructuring or conversion. The biological research and production facilities throughout the FSU were heavily contaminated by their Cold War labors and their conversion to meet global standards for Good Laboratory (GLP) and Good Manufacturing (GMP) Practices is both questionable and costly. The viability of the continuing focus on “conversion” of these institutes, in most instances, will not prove the most efficacious approach to creating sustainable job opportunities for the target population. In sum, BII has set about replicating many of the previous and failed efforts of the DoD’s Defense Conversion program and DoE’s Nuclear Cities Initiative to convert dated facilities into modern enterprises capable of competing in global markets.

The mandate of the now defunct Nuclear Cities Initiative (NCI) was to help Russia downsize its nuclear weapons complex by introducing commercial enterprises and redirecting scientists, technicians, and engineers in Russia’s ten closed nuclear cities. Working with the US Laboratories, NCI first attempted to convert large defense production facilities to civilian applications. Unfortunately, access to these facilities has been and remains severely hindered. The inherent lack of ownership that this presupposes immediately deters private sector engagement. The lessons learned from these early failed efforts by NCI led both Russian and US Government actors to conclude that the creation of “technoparks” outside of the fences of the closed cities was a more cost-

effective and viable strategy to engage the targeted population of weapons specialists. Because of the difficult geographic focus of the program—found within the far-flung “closed cities”—NCI sought to engage the target community not only within its erstwhile weapons laboratories, but to create viable/sustainable alternative enterprises to employ technical competence. NCI also worked to train a number of specialists from the WMD complex in business management, English, business plan development, and strategic planning, with the aim of encouraging development of a non-WMD economy within the closed cities. In some cases, this has created a fledgling market that vies with the WMD institutes for high tech skills either locally developed or recruited. While the groundwork has been laid, with approximately thirty-five NCI-businesses developed across its three target nuclear cities, this nascent effort requires more cultivation and global exposure to have an assured long-term significant impact. Ultimately, the challenges associated with setting up viable commercial enterprises within the geographically far-flung closed nuclear cities where access remains heavily restricted proved inconsistent with the needs of modern business. As noted previously, NCI ceased operations on September 22, 2006 due to continued disputes between Washington and Moscow over liability protections along with a lack of political support for the program across the US government.

With existing models of engagement under siege, and with private sector engagement increasingly seen as critical to program sustainability beyond the US Government funding horizon, the Civilian Research and Development Foundation could become critical to mission success. Over time, CRDF has become an indispensable partner in the efforts of all three agencies, from management support under a Defense Threat Reduction Agency contract for cooperative biological research, to facilitating the transfer of equipment for NNSA’s nonproliferation programs, to support for implementation of the State Department’s BioIndustry Initiative and the Science and Technology Centers. CRDF represents a unique and underutilized tool for the United States Government to not only better leverage and integrate programming across government agencies, but also to act innovatively due to fewer bureaucratic restrictions. Furthermore, like the National Laboratories, CRDF brings to the table a network of relationships with the target community fostered by trust and mutual respect for over eleven years. If offered sufficient means and an enhanced mission, CRDF’s Industry Grants Program and its potential involvement in activities across government agencies could immediately increase industry’s role in successful, sustainable redirection. Exploiting CRDF’s potential in this manner would offer an elevated return on investment as compared to similar efforts imbedded within US Government agencies and an enhanced opportunity for sustainability.

RESTRUCTURING OF STATE-OWNED ENTERPRISES
SUMMARY OF FINDINGS

- Restructuring *can* produce commercially sustainable employment.
- State enterprises are not capable of restructuring themselves into commercially viable businesses.
- Commercial restructuring provides the greatest total return on investment for governments because the benefits far exceed the core nonproliferation goals.
- Such efforts are potentially risky and may prove far more costly in the long run than “green field” efforts.
- BII has yet to demonstrate how it will create sustainable employment.
- The capacity offered by the Civilian Research and Development Foundation could be the most efficacious and cost-effective mechanism to implement new, sustainable models of scientific engagement.

GETTING FURTHER, FASTER: RECOMMENDATIONS

The preceding analysis and findings lead us to conclude that while the CNP agenda has been an unparalleled if inhibited national security success, US Government efforts are not operating at peak efficiency. Below we offer a pragmatic set of solutions to Congress, the agencies, and to the private sector that if implemented will go far toward maximizing US return on this critical national security investment. We divide our recommendations into crosscutting proposals affecting programs across the US Government, and agency-specific recommendations for the Departments of Defense, Energy and State. In summary, our recommendations include:

CROSSCUTTING RECOMMENDATIONS:

1. **Prepare a Global Reassessment of Risks and Objectives:** The National Security Council should appoint a single individual to coordinate a comprehensive assessment of global nonproliferation threats and CNP program responses;
2. **Leverage Existing Structures for Continuity and Coherence:** A new tripartite structure involving the National Security Council (NSC), Office of Management and Budget (OMB), and the Department of State should be created to settle disputes, ensure budgetary prioritization, and enhance information sharing and coordination;
3. **Leverage Synergies Across All Contributory States to the Global Partnership:** Following a survey and reassessment of its own activities (see Recommendation One), the US Government should work collaboratively with other contributors to the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction in order to identify common objectives and leverage opportunities that maximize sustainability and return on investment;
4. **Promote Implementation of UN Security Council Resolution 1540:** A global nonproliferation toolkit created by comprehensive US Government planning and G8 coordination should be leveraged in direct support of the effective implementation of UN Security Council Resolution 1540.
5. **Move from Patronage to Partnership:** Where possible, reciprocity and collaboration between the US and host governments in program

- conception and implementation should be promoted in order to alter the CNP dynamic from one of “patronage” to one of “partnership”;
6. **Manage Expectations, Buy-in, and Sustainability:** Greater attention should be paid by the agencies during program development stages to build consensus through negotiation, and outline processes through training to ensure the buy-in of the host country and promote sustainability;
 7. **Establish a Novel Congressional Mechanism for Oversight and Support:** The United States Congress should establish a bi-cameral congressional task force to receive regular briefings from an array of government, private, and non-governmental experts to facilitate improved oversight of the CNP programs and reduce the administrative burden on personnel within the Executive agencies;
 8. **Revamp Redirection of Scientific Talent of Proliferation Concern:** The US Government should reexamine the goals of all programs that promote global scientific engagement as a route to nonproliferation and begin to more directly work with the private sector to transition the target community from short-term grants to long-term employment;
 9. **Establish a Business Roundtable to Identify Synergies with US Government Programming:** Following the global reassessment of threats and CNP activities (see Recommendation #1) which should incorporate US Government interests beyond the immediate nonproliferation objectives of these programs, a periodic business roundtable should be convened to begin surveying synergies between government and industry needs and objectives;

THE DEPARTMENT OF DEFENSE:

10. **Refine the Master Plan for Cooperative Threat Reduction:** The Department of Defense should reevaluate its individual “country plans” in order to better integrate both with other DoD activities as well as wider US Government objectives and programs;
11. **Address Staff Shortfalls at DoD:** The CTR Directorate at the Pentagon should establish a formal program whereby scientific detailees from other agencies augment current staffing shortfalls. In addition, there is a particular need for new permanent staff within the CTR Directorate with expertise in acquisition;
12. **Adjust the CTR Contracting Process:** DoD should move beyond the Cooperative Threat Reduction Integrating Contract (CTRIC) model, utilizing the full range of contract mechanisms from direct contracts with other US Government entities or with host nation firms, to award/fee contracts, to fixed fee contracts, and incentive fees to address changing threats and opportunities on the ground;

13. **Pair Program Budgets with Program Priorities:** The White House and Congress should ensure that political commitments are followed up with the appropriate budgetary allocations in order to avoid a mismatch between promises and expectations within the host country;
14. **Remove Restrictions on CTR Expenditures:** Congress should lift the legislated ceiling on annual maximum allowable increases on CTR budget line items;
15. **Promote Transparency with Capitol Hill and the Media:** The DTRA public affairs office should assume a more proactive stance in hailing the successes of the Cooperative Threat Reduction programs on Capitol Hill and to the media directly;

THE DEPARTMENT OF ENERGY:

16. **Define Agency Turf and Eliminate Conflict:** The roles and responsibilities of each agency must be clarified at the outset of each new initiative by defining a bright line between the termination of one agency's role in negotiation and another agency's role in implementation;
17. **Promote Sustainability and Leverage Existing Programs:** NNSA should work aggressively to break down stovepipes between programs and leverage opportunities to jointly pursue objectives and promote sustainability;
18. **Recognize the Role of the Private Sector in Addressing the Brain Drain Threat:** Congress should immediately work to enhance the flexibility and performance of the Initiatives for Proliferation Prevention (IPP) program by giving the private sector wider berth to exploit redirection and market pull opportunities;
19. **Enhance Efforts to Inform Congress:** DoE/NNSA should initiate regular briefings for Members and staff in order to enhance transparency, encourage oversight, and build greater awareness of its programs on Capitol Hill;
20. **Remedy the NNSA Contracting Bottleneck:** Staff of the Albuquerque Service Center should be augmented in order to eliminate contracting bottlenecks for NNSA program implementation;
21. **Eliminate Unnecessary Funding Restrictions:** Congress should immediately eliminate restrictions that divide DoE funding into program funds (for implementation of program activities) and program direction funds (which supports NNSA personnel, travel, training, *etc.*);

THE DEPARTMENT OF STATE:

22. **Create a US Government Nonproliferation Clearinghouse:** The Department of State should establish a new office that serves as an

- information clearinghouse for all agency and G8 activities in order to avoid duplication of effort and maximum use of resources;
23. **Shore up Capacity at the Department of State:** Within the context of the US Government wide reevaluation of CNP programming (see Recommendation #1), special attention should be paid to the various redirection/engagement programs at the Department of State, with renewed emphasis placed upon those efforts that can most effectively support long-term sustainability;
 24. **Rethink the Role of the STCs, Facility Conversion, and CRDF:** As with NNSA efforts, State redirection programs should work toward greater involvement of the private sector;
 25. **Eliminate Legislative Impediments to Progress:** Congress should amend the provisions on certification to offer permanent Presidential waiver authority, or at least align reporting requirements so that they occur simultaneously.

I

RECOMMENDATION ONE:

PREPARE A GLOBAL REASSESSMENT OF RISKS AND OBJECTIVES

Findings

The Cooperative Nonproliferation programs were conceived and launched in the early years following the unanticipated collapse of the Soviet Union. This time period was characterized by major political, social and economic transition throughout the region. Despite radically different circumstances in Russia and the other former Soviet states today, there has not been a global reassessment of these programs' roles and objectives to ensure efficiency and effectiveness in the current strategic environment. Not only is there a need to reevaluate the original patchwork quilt of nonproliferation programs that have evolved, other major programs at the Department of Homeland Security and elsewhere have been established since September 11 to address an even more diffuse scope of potential threats. These efforts have not been integrated into a holistic strategy to combat proliferation.

Impact

A common criticism of CNP programs has been the lack of a focal point within the government to assess priorities, allocate budgets, and delegate authority across multiple government agencies. This absence is exacerbated by the annual budget process which stovepipes funding within agencies without a process to recalibrate efforts based upon changing threats. Not only does this promote redundancies and inefficiencies across programs, it frustrates efforts to pair budget priorities with security priorities.

Recommendation

A National Security Council designee should spearhead an interagency process to reassess the global role of CNP efforts in today's context, including those that have arisen in the past few years. Such a close examination of the entire suite of programs across all relevant government agencies (see Figure #5, pp. 21-22) should strive to eliminate duplication, consolidate where necessary, prioritize activities and fill any gaps within existing efforts. Not only do the changed circumstances in Russia and the region call for a reevaluation, the role of CNP efforts beyond the FSU need scrutinizing in light of new opportunities such as the Global Partnership Against the Spread of Weapons and Materials of Mass

Destruction, UN Security Council Resolution 1540 and the recently announced Global Initiative to Combat Nuclear Terrorism.

The central objectives of this reassessment are two-fold: 1) to produce a detailed and timely analysis, including an “exit strategy” for US assistance where appropriate, and 2) to provide the foundation for an ongoing interagency process led by the NSC that involves OMB, as well as the State, DoE/NNSA and Defense Department, the Department of Homeland Security and other government agencies involved in the CNP mission (see Recommendation #2).

2

RECOMMENDATION TWO:

LEVERAGE EXISTING STRUCTURES FOR CONTINUITY AND COHERENCE

Findings

The Departments of Defense, Energy and State all suffer under significant programmatic impediments resulting from unclear authorities between agencies or discontinuities in the interagency process. Furthermore, a definitive need exists for greater information sharing among agencies regarding their programs and activities in the field. This information deficit is further complicated by the ongoing programs and activities of other countries participating in Global Partnership efforts. It is common for multiple agencies to simultaneously plan and pursue opportunities on the ground in the FSU only to learn of one another's efforts—or other states' efforts—through their host partners.

Impact

The impact of agency parochialism exacerbated by an ineffective interagency process and a lack of transparency are manifold. These include, but are not limited to: delays in the execution of programs, redundancies in efforts, unrealized potential to build synergies within or between agency efforts, and a potential for CNP efforts to work at cross-purposes with or be impeded by other foreign policy objectives. The implications are potentially far more sweeping due to a lack of coordination across G8 partner countries as well as with other contributors to the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

Recommendation

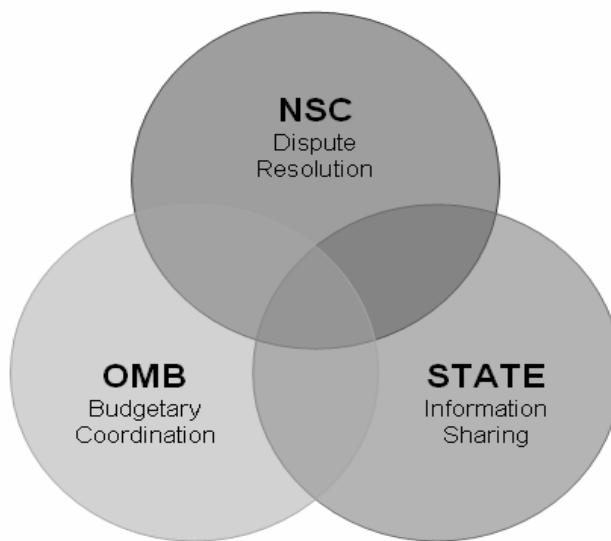
The global reassessment of risks and objectives (see Recommendation #1) should be used to build a foundation for an ongoing process within the US Government to set priorities, ensure coherence, and streamline ongoing activities. Building this foundation and spearheading the process will require knowledgeable and active engagement by a National Security Council official. The NSC official will work hand-in-glove with the appropriate OMB, State, Energy, and Defense Department officials, and with Capitol Hill, to provide the assessment outlined in Recommendation #1 and prepare the foundation for an ongoing interagency process to implement these findings and maintain coherence and efficiency in the US Government's CNP efforts as a whole. Once

the overarching strategy is determined, the NSC will serve as a “court of last resort” for disputes arising between agencies.

In addition, we recommend the creation of an office at the State Department as the US Government’s “information clearinghouse” for all agencies’ CNP-related activities as well as the information collection and distribution office for timely information regarding Global Partnership programs and field activities. This office will be responsible for collection and dissemination of information regarding the status, site visits and objectives of each program. The office will not have operational control over programs, but rather serve as a node for ongoing communications and information sharing.

Finally, we recommend the amalgamation of responsibility for all Cooperative Nonproliferation budget oversight within a single individual within OMB. The urgency of the threat necessitates that the sole responsibility of this office should be to ensure the systematic and deliberate prioritization of budgets based upon the security priorities as defined by the NSC coordinator in conjunction with the Departments of Energy, Defense and State as well as the intelligence community. The urgency of the proliferation threat surely justifies the creation of a special budget coordinator’s office within OMB.

Figure 13: Proposed Tripartite Structure for Budget Coordination, Information Sharing, and Dispute Resolution



3

RECOMMENDATION THREE: LEVERAGE SYNERGIES ACROSS ALL CONTRIBUTORY STATES TO THE GLOBAL PARTNERSHIP

Findings

The United States Government spearheaded the launch of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction in 2002 at the G8 Summit in Canada. The goal is to secure US\$20 billion for use in Russian nonproliferation projects over the course of a ten year period. The United States has pledged US\$10 billion in support of this effort and in keeping with its current pace of CNP spending.

To date, the Global Partnership is US\$1 billion shy of its goal. More distressing, however, is the pace at which existing pledges are being converted to projects on the ground in the region. As of last year, only sixteen percent (16%) of pledges have been committed to programmatic activities.

Impact

In large measure, this is due to continued reluctance of many of the smaller state contributors such as France (€750 million) and Italy (€1 billion) to “piggyback” their commitments on other states’ projects. Because many projects within the host countries require larger investments than these donor states are willing to contribute, and due to their unwillingness to commingle their funds with other states contributions, they have been unable to translate their pledges into nonproliferation programs in support of the Global Partnership.

Recommendation

The internal reassessment of US Government-wide objectives beyond the immediate nonproliferation goals of CNP (see Recommendation #1) provides a unique opportunity to highlight the synergies that states can derive in support of nonproliferation, economic development, public health, and myriad other policy objectives. The US Government should share the results of its findings and press the G8 and other contributing states parties to: (a) search for similar domestic commonalities that combine their respective Global Partnership investments with other foreign policy spending, and (b) encourage wider collaboration

internationally to better leverage Global Partnership funding across national boundaries.

4

RECOMMENDATION FOUR: PROMOTE IMPLEMENTATION OF UN SECURITY COUNCIL 1540

Findings

While the states of the FSU are perhaps the largest potential source of proliferation, anecdotal evidence suggests that they are not the only source. Today, intelligence suggests that up to 15 states are either likely or confirmed to be harboring nuclear, biological or chemical weapons programs. Until the motivations for WMD acquisition can be addressed, this number is only expected to grow.

In order to help close the gap and strengthen the global nonproliferation regime, the United Nations Security Council unanimously passed Resolution 1540, mandating all UN Member States to implement a set of supply-side controls and criminalize proliferant activities within their territories. The April 2004 resolution was introduced with great fanfare, marking the most significant opportunity since September 11th to pragmatically pair states-at-risk with the technical and financial assistance they require to conform to global nonproliferation norms.

Global implementation of 1540 will demand that the tools under the rubric of “collaborative nonproliferation” be sharpened, extended, and fully exploited. Moreover, eliciting the political will to utilize these tools in a widespread capacity-building effort requires recognition of the nexus between international nonproliferation objectives and the vulnerabilities associated with states-at-risk. The breadth, resilience, and adaptability of the Cooperative Nonproliferation toolkit is its fundamental strength and the main reason its applications extend far beyond the territory or challenges arising from the Soviet Union’s collapse. The spin-off benefits to these programs have been immense and have included not only security payoffs but also advances in global development, technology and skills transfer, enterprise development, rule of law programming, etc. Because of bureaucratic stove-piping, however, the United States Government has never fused hard and soft security efforts in an attempt to maximize return on investment.

Impact

Whereas the Global Partnership represents a major step forward in meeting the original objectives of collaborative nonproliferation and a foundation for activities inside of the former Soviet Union, UN Security Council Resolution 1540 puts forward a vague notion of technical assistance to implement a global mandate stipulated by the UN Security Council. In many cases however, states who have the means to become global proliferators lack the appropriate supply side measures to effectively prevent weapons diffusion. The result is that they are likely to become unwitting contributors to global terrorism.

Recommendation

The Cooperative Nonproliferation toolkit, made international by the Global Partnership, provides a logical platform from which to implement UNSCR 1540 and a global supply side approach to nonproliferation. In contrast to other initiatives focused on the assistance offered by CNP programming, the US Government should take the lead in coordinating a sustained program to match the expanded tools of CNP with apparent need. Coupling the Security Council-imposed mandate with a comprehensive international toolkit of resources both technical and financial would achieve an integrated framework for managing supply-side proliferation risks—including those from non-state actors.

5

RECOMMENDATION FIVE: MOVE FROM PATRONAGE TO PARTNERSHIP

Findings

As mentioned above, several other analyses of CNP efforts have noted a necessity to move the US-Russia relationship from one of “patronage to partnership.” Agency officials and their private sector counterparts are acutely aware of the “donor” issue as an ongoing impediment to progress and sustainability. Government officials also recognize that the dynamics of the current relationship put the US at a disadvantage in negotiations with their Russian counterparts due to varying threat perceptions and Russia’s greatly improved economic circumstances.

In light of the radically changed political and economic environment in the region, and as one likely result of the global assessment set forward in Recommendation #1, the moment is ripe for finding common ground and fundamentally transforming this relationship. Furthermore, the commitments made at the recent G8 Summit in Saint Petersburg provide an appropriate foundation and propitious opportunity to achieve this objective.

Impact

The imbalanced nature of the US-Russia relationship has been a systemic impediment to achieving faster progress from the very beginning of CNP efforts. While US policymakers were entirely justified in presuming that reciprocity was unnecessary so long as the US “paid the bills,” the lack of Russians’ willingness to provide the access or transparency necessary to ensure appropriate use of US taxpayers’ money at sensitive sites and facilities has precluded achievement of US objectives in numerous instances. This longstanding and pervasive impediment is likely to become an intractable barrier due to Russia’s improved economic situation. Whereas earlier US support for these efforts was a requirement and the Russians were more eager to leverage these financial contributions, this is no longer the case. Lastly, the gap between US and Russian threat perceptions only further serves to undermine efforts toward sustainability and disadvantages the US in its negotiations with Russia. Where the host government sees no threat, it is unlikely that it will invest local resources to maintain US Government investments once CNP financing is terminated.

Recommendation

A reassessment of the prospects and pitfalls of US-Russian relations would presumably be a fundamental component of Recommendation #1. Not only should the radically changed economic situation provide the context for a fresh look at US Government projects with Russia, but the analysis should include concrete measures for leveraging recent US-Russian agreements and begin the transition from patronage to partnership. For example, the recent Bush-Putin announcement of the Global Initiative to Combat Nuclear Terrorism and commitments toward full implementation of UNSCR 1540 provide an opportunity to achieve a fundamental transformation in the relationship. Implementation of the Global Initiative in particular should begin with achieving consensus on the threats (internal and global), agreed upon standards for safety and security of nuclear weapons and materials, including information exchanges and reciprocal on-site visits to ensure adherence to such standards, and joint measures to assist other countries in meeting standards to combat nuclear terrorism and implement UNSCR 1540.

6

RECOMMENDATION SIX: MANAGE EXPECTATIONS, BUY-IN, AND SUSTAINABILITY

Findings

Three common themes today challenge the CNP agenda across each of the principle implementing departments: (1) the longstanding perception of unmet expectations both in the US and the host countries, (2) the need for stronger host country buy-in at the outset of any major program and (3) the prospects for sustainability after the conclusion of US support. Clarity regarding US commitments and objectives, in conjunction with meeting the host countries needs and/or addressing any mismatch in threat perceptions, would go a long way toward helping to build a foundation for program stability and long-term sustainability.

Impact

Both the implementing agencies and their private sector counterparts recognized the need for more planning, consensus-building and clarity regarding procedures between the US and host countries at the front end of program execution. This balancing of expectations would avoid misunderstanding and the souring of relations due to program changes midstream or due to blatant misunderstandings over incorrect assumptions. US efforts to ensure sustainability will enjoy a more solid foundation if they build a consensus regarding the host country's needs and objectives. Without this foundation at the outset, US efforts will likely meet with resistance in program implementation and find transition to an exit strategy exceedingly difficult. For example, the US Government has invested substantially in Russia to address the threat of unsecured weapons-grade materials. The Russian Government is far more preoccupied with the threat presented by "dirty bombs" and has prioritized domestic funding on that basis. This differing threat perception will challenge sustainability once US assistance ceases.

Recommendation

At the start of any program, the agency involved should build consensus with the respective host country regarding the threats and ensure host country support for the objectives and commitments to sustain the efforts after US support ends. Ideally, the beginning of every iteration of a program would include "training"

elements for host country counterparts regarding US processes and procedures.⁸⁸ Experience has shown that program execution becomes immeasurably more fluid absent unrealistic expectations from host country participants.

The problem of unfulfilled expectations based on a glitch between agencies and/or congressional changes to a program's parameters or budgets can be mitigated by the proposed interagency and congressional task force processes and structures outlined in Recommendations #2 and #7. Also see Recommendation #5 for Russia-specific issues and proposed solutions.

⁸⁸ The Department of Energy initiated a training program for host country personnel in order to clarify US budget and contracting processes. Due to the perceived success of these training modules in helping to manage host country expectations and avoid misunderstanding in the ongoing efforts, the Defense Department has since started providing them in certain instances as well.

7

RECOMMENDATION SEVEN: ESTABLISH A NOVEL CONGRESSIONAL MECHANISM FOR OVERSIGHT AND SUPPORT

Findings

A survey of CNP program implementation suggests that Cooperative Nonproliferation programs have never been embraced at sufficiently high levels to become an “organizing principle” for a US non- and counterproliferation strategy. Over time, this collection of acronyms across multiple US Government agencies became relegated to a limited role of administering supply-side measures applicable to the former Soviet Union and, perhaps, other discrete scenarios. Their low-level status within the agencies, mirrored by relatively meager funding allocations in the President’s Budget, has limited the incentives and wherewithal of the Legislative Branch to further promote these activities. In addition, the complex, multi-jurisdictional and preventive nature of funding allocated for CNP efforts stymie the intermittent efforts on Capitol Hill to generate greater support and assist in “organizing” the Executive Branch’s efforts.

All three Executive agencies, as well as many of their private sector counterparts, suffer under cumbersome “congressional oversight” activities – reporting requirements, nonsensical earmarks, lack of nuance in metrics for progress, and insufficient understanding of the programs. While it is a universal truth that agencies will balk at congressional actions that limit their flexibility or mandate greater transparency, common ground must be found to rectify the deadlock. In our assessment, the complexity of these programs, their dispersion among multiple agencies, the limited agency personnel responsible for executing them, and the relatively small budgets afforded them all suggest that finding a more effective and less time-consuming means for informational exchanges between the agency actors and their congressional counterparts would be highly advantageous to both parties. Creating an informal convening mechanism within Congress that includes all interested personal office and committee staff, with the potential for occasional participation of Members, would not only enhance Congress’ internal policymaking coherence on CNP efforts, but would serve to bolster its knowledge base regarding the processes and larger prospects for these programs in meeting some of the US’ non- and counterproliferation objectives.

Impact

The impact of the institutional barriers in Congress, as well as the disconnect between Capitol Hill and the agencies for which they provide “oversight” in these programs, is that CNP activities are afforded neither the time nor the attention they deserve as critical elements to the US’s defensive strategy. More importantly, Congress has been culpable of intentionally or inadvertently creating obstacles to achieving faster progress in these efforts through ill-informed earmarks and onerous reporting requirements.

Recommendation

In light of the obstacles internal to the legislative branch and the need for greater communication between agency officials and their congressional counterparts, we propose the creation of a bicameral congressional task force whose objective is to regularly provide briefings from a broad array of the actors involved in actual implementation of CNP initiatives. This internal congressional mechanism would provide the necessary institutional counterpart to more coordinated interagency efforts outlined in Recommendation #2. The sponsorship of Members of Congress and a minimum of internal support could be bolstered by collaborating with a non-partisan policy institute willing to facilitate the organization of the briefings, provide synopses of each briefing and facilitate outreach beyond those in actual attendance, when necessary. Although a Nonproliferation Task Force, currently chaired by Representatives Edward Markey (D-MA) and Chris Shays (R-CT), already exists in the House, its wherewithal is limited to one full-time fellow from the American Association for the Advancement of Science who rotates annually. Also, the Russian American Nuclear Advisory Council (RANSAC) runs a very successful annual briefing series with numerous sponsors from both chambers. Similarly, the Center for Strategic and International Studies (CSIS) runs an ongoing educational series on proliferation issues, and the Stimson Center’s *Security for a New Century* program offers ongoing briefings for all interested staff on a broad array of current security challenges. The key differences between these activities and this proposed series would be its structure, the continuity provided in terms of key staffer and agency official participation, and a more narrow focus on the operational elements of CNP efforts.

8

RECOMMENDATION EIGHT: **REVAMP REDIRECTION OF SCIENTIFIC TALENT OF PROLIFERATION CONCERN**

Findings

The threat posed by the proliferation of potentially nefarious knowledge is creating a growth industry in the FSU and around the globe. Meanwhile programs focused on redirecting scientific capacity of proliferation concern in the FSU toward peaceful pursuits are facing premature elimination. We find that:

1. The programs have not sufficiently inculcated “lessons learned” from over a decade of efforts in conversion and commercialization, and have been structurally impaired by congressional authorities from reacting inventively to the continued threat of brain drain from the states of the former Soviet Union;
2. Existing programs focus on scientific collaboration (Science and Technology Centers, Bio-Chem Redirect program) or technology development (Initiatives for Proliferation Prevention) rather than sustainable job creation through “market pull” models. As such, permanent job creation has occurred by happenstance rather than by design;
3. The shortfall of the government-funded redirect efforts outlined above is that sustainability hinges on continuing government support. An in-depth survey of the redirect programs across all three agencies point to the same fundamental shortfall: if the objective is job creation in a peaceful pursuit, who will serve as the employers?
4. Existing efforts have not successfully validated to potential employers the tremendous scientific capacity and capability of the target community within the FSU;
5. No systematic effort has been made to address the next generation of FSU scientists who may possess potentially dangerous capabilities, who are not engaged in global research networks, and who therefore may have the motivation to proliferate;
6. Too little effort has been made to include industry actors as *employers* rather than *customers* of technology and “incentivize” their employment of the scientific capacity of proliferation concern;

7. The focus on “conversion” of existing facilities and providing salaries to keep scientists in place at their erstwhile weapons institutes has hindered the creation of sustainable commercial employment opportunities and downsizing of the WMD complex;
8. Program flexibility and full recognition of the benefits of successfully engaging this pool of scientific talent for nonproliferation, energy futures, counterterrorism, public health, economic development and mutual commercial advantage is lacking, as is acknowledgment of the potential spillover benefits for the establishment of rule of law and the creation of in-country business know-how.

Impact

While the redirect programs are critical to US security, as currently configured they are underperforming. US programs have been unable to systematically create opportunities for sustainable employment. Addressing the human dimension of the potential proliferation threat is key to the sustainability of all US CNP efforts. Allowing donor fatigue or new priorities to overtake US attention to this aspect of the threat leaves us vulnerable not only to leakage of sensitive knowledge detrimental to our interests, but leaves open the possibility of a quick reversal of all the disarmament objectives realized by these programs to date. While some suggest that the brain drain threat has become more contained and thus more manageable through the strengthened security at facilities and redirect efforts, increased mobility of the target community, a new generation of disengaged scientists, and the ability to market their talents unilaterally has created a growing rather than diminishing threat.

Recommendation

There are two obvious avenues for effectively engaging and leveraging the scientific and technical talent resident in the WMD complexes in the region. One is coordinating and leveraging government programs to meet mutually identified needs; the other is creating an appropriate incentive structure to engage potential employers (*i.e.* private industry actors) whenever possible. These two possibilities are not mutually exclusive, and when combined are an effective means to meet ongoing nonproliferation and threat reduction objectives as well as build the necessary political support the programs need to succeed.

In order to more closely align nonproliferation objectives with the interests of industry, thereby creating employment opportunities for top-tier scientists, technicians and engineers, the US Government should:

- Engage the G8 business communities and the FSU target communities in a rigorous informational exchange regarding the types of expertise available and potential advantages of employing former weapons specialists;
- Establish an international version of the Small Business Innovation Research (SBIR) program that targets the talents of former Soviet WMD specialists in particular to service US Government needs—or alternatively, recruit SBIR grant recipients to enhance their R&D capacity by utilizing/engaging FSU scientists through existing programs;
- Create an incentive structure that engages the private sector as *employers* of FSU talent rather than as *customers* through short-term salary and other subsidies in order to promote sustainable commercial employment over the long-term;
- Integrate the needs of government for ongoing CNP programs into an effort to create “sustainable” employment opportunities for former weapons personnel through the provision of products and services requisite to maintain other DoE and DoD funded projects in the region or promoting “security culture” efforts. Use tax incentives and other inducements to engage private industry in these efforts (see also Recommendation #18 for DoE/NNSA specific recommendations);
- Incentivize collaborative efforts between businesses and FSU weapons expertise to meet the technological demands of US Government efforts such as the Global Nuclear Energy Partnership (GNEP), the Global Initiative to Combat Nuclear Terrorism, the Joint Improvised Exploding Device Defeat Organization (JIEDDO), and the Domestic Nuclear Detection Office (see Recommendation #17 for DoE/NNSA specific recommendation).

The latter two bullets parallel conceptually the Law Enforcement Targeted Initiative (see Box #2, p. 44) and the BTRP and BTEP programs described earlier, but numerous other new opportunities exist to go beyond these current efforts to leverage the vast scientific expertise resident in the FSU. By coordinating international nonproliferation programs that redirect scientists with domestic US Government technology/development programs that meet energy, nonproliferation, counterterrorism, intelligence and other needs, the US could more sustainably achieve its nonproliferation goals with respect to brain drain while developing technological solutions to broader security concerns at lower cost.

9

RECOMMENDATION NINE:

ESTABLISH A BUSINESS ROUNDTABLE

TO IDENTIFY SYNERGIES WITH

US GOVERNMENT PROGRAMMING

Findings

The CNP programs were launched fifteen years ago with little thought given to their long term sustainability. There is a very real likelihood that once US and other G8 funding for Cooperative Nonproliferation sunsets, the investments of both time and money will be for naught. Unless models of sustainability and host government buy-in can be achieved before funding streams are terminated, there is little hope that enduring security benefits will be realized. Critical to achieving the former will be the broader involvement of the private sector to fulfill the role of the United States government as a supporter—albeit an indirect supporter—of the CNP agenda. While industry cannot be expected to act as social investors from a security perspective, if they can be convinced that there is sufficient business incentive that would create anticipated social returns in terms of nonproliferation, the likelihood of making programs sustainable is vastly improved.

Impact

To date, the US government has spent more than US\$12 billion on programs designed to manage the enduring threat posed by the Soviet Union’s WMD legacy. The failure to realize enduring value from these significant investments would represent an appalling failure on the part of the US government, and present a potentially catastrophic blow to US national security in the form of rampant proliferation.

Recommendation

The United States government should act to appoint an independent broker to help generate a dialogue between overworked agency implementers and currently disinterested private sector players. Through the establishment of a “business roundtable” dedicated to more effective implementation of the broad panoply of CNP programs, this disinterested third party broker would: (a) survey the landscape to define novel areas of collaboration; (b) identify the relevant players from both government and the private sector; (c) build a network to foster productive relationships; (d) act as host and moderator of a regular series

of roundtable discussions; (e) provide a critically absent feedback loop between government and private industry, (f) facilitate a process of consensus building among all pertinent players in the CNP arena designed to promote the US government's broad foreign policy objectives and promote sustainability of the CNP agenda.

10

RECOMMENDATION TEN:

REFINE THE MASTER PLAN FOR

COOPERATIVE THREAT REDUCTION

Findings

At present, insufficient coordination with the threat reduction agenda occurs across other US Government program areas. Achieving greater clarity within the Pentagon’s “Master Plan” for each country is critical. Perhaps more important, however, is enhanced coordination within the context of the US Government’s overall “Country” or “Master Plan” vis-à-vis other issues, such as human rights, democracy promotion, etc. Also tied to this lack of clarity in terms of long-term strategic objectives is a lack of refined goals and a defined end state for each project in DoD’s implementing agreements with each host country.

Impact

Both CTR program managers and their contractors experience considerable confusion and significant delays in program implementation as a result of these shortfalls in government-wide strategic planning as well as the processes internal to DoD with respect to negotiation of annual implementing agreements with each host country.

Recommendation

Ideally the Pentagon’s articulation of goals and an “exit strategy”, where applicable, would be a subset of DoD coordination with the State Department regarding an overarching “Country” or “Master Plan” that would outline the US Government’s foreign policy priorities (presumably also an objective of a coordinated interagency process as outlined in Recommendation #2). In the context of this interagency process, the Defense Department’s own strategic plan for threat reduction efforts could remain a Pentagon-specific exercise that delineates its one to five-year goals regarding the myriad non- and counterproliferation initiatives with each host country. The Pentagon also should devise an easy method for ensuring that contractors operating in the CTR arena receive information regarding the overarching objectives as part of the contracting process.

11

RECOMMENDATION ELEVEN:

ADDRESS STAFF SHORTFALLS AT DoD

Findings

The expansive and increasingly labor intensive suite of CTR programs within the Pentagon has in some cases created insufficient personnel capacity for effective implementation and oversight. Not only is additional personnel with acquisition experience needed within the CTR Directorate, additional shortfalls in capacity exist within the Office of the Under Secretary of Defense for Policy (USD(P)) and the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs (ATSD(NCB)). Furthermore, the lack of personnel within the Pentagon with scientific expertise often results in impediments to implementation of projects.

Impact

One concrete manifestation of personnel shortages at USD(P) is the creation of onerous delays in approval of travel and communications for CTR program managers. Similarly, shortfalls in acquisition personnel within the CTR Directorate create delays in the contracting process, unnecessarily slowing program implementation. Lastly, due to a lack of scientific expertise within US negotiating teams, the implementing agreements with host countries and subsequent task orders for specific projects often lack sufficient detail to allow those implementing contractors the capacity to require facilities or laboratories to meet certain security requirements or achieve specific objectives. When such vagaries surface in the implementation process, the contractor must compel managers to go back to the implementing agreement and negotiate changes that specify requirements parallel to those being required of the contractor. This is a significant waste of time and resources.

Recommendation

The 2004 DoD Inspector General report noted shortfalls in the CTR bureaucracy's capacity for efficient implementation and effective oversight of the programs under its purview and recommended that DoD perform an internal assessment of the numbers and qualifications of personnel needed to fill specific gaps. We recommend that DoD follow up on this recommendation from the Inspector General report.⁸⁹

⁸⁹ See Department of Defense Inspector General, "Cooperative Threat Reduction: Management Structure of the Cooperative Threat Reduction Program (D-2004-050)" (February 5, 2004): 11.

Whereas the increase in military or civilian billets to obtain the needed scientific expertise would likely be cost prohibitive, the CTR Directorate could create a structure similar to other DoD offices to leverage seconded employees with technical specialties from other agencies (or utilize the Intergovernmental Personnel Act to employ personnel from US National Laboratories) to bolster its internal scientific capacity within the policymaking and implementation arena in order to bridge the gap and avoid unnecessary delays in project implementation in a cost-effective manner.

12

RECOMMENDATION TWELVE:

ADJUST THE CTR CONTRACTING PROCESS

Findings

The evolution of Defense Department efforts from an emergency response “procurement” effort, to programs designed to eliminate excess weapons and infrastructure, to today’s more nuanced focus on “capacity building” has required the adoption of different mechanisms to address changing needs on the ground in the FSU. As many of the major CTR dismantlement and construction efforts come to a close over the coming years, and the bulk of DoD’s activities assume a capability-building and self-sufficiency mode where host countries can become partners in global threat reduction rather than “aid recipients”, demands and needs are shifting once again. Large scale construction and destruction projects such as the Shchuch’ye chemical weapons destruction facility will likely become a thing of the past. In 2001, the CTR Integrating Contracts (CTRIC) umbrella was created in order to expedite the contracting process in support of the large scale efforts by the Department of Defense. CTRIC includes the following five large integrating contractors: Bechtel National Inc., Kellogg, Brown and Root, Parsons Delaware Inc., Washington Group International Inc., and Raytheon Technical Services Company. Since CTRIC’s creation, all CTR contracts were competed exclusively among these five firms. Because today’s needs entail less large-scale engineering/design efforts, and more frequently encompass unique scientific or training needs, the CTRIC companies are increasingly less suited to meet changing US Government objectives. Often, particularly for some of the more common initiatives in the CTR Directorate’s portfolio today, these large engineering and construction firms have essentially become “pass throughs” where, upon winning a CTR task order, they hire the necessary talent or skills sets from a pool of subcontractors to achieve the objectives outlined in the CTR contract.

Impact

The current contracting process adds an additional layer of cost and complexity to many of the CTR Directorate’s efforts. There exists an unnecessarily long chain of command placing DTRA program managers further from the operational implementation of CTR efforts, which reduces effective oversight. Although the CTRIC umbrella does help expedite the process, more can be done to create a general “template” among similar efforts to further streamline the paperwork involved in the contracting process among CTRIC contractors. Responses to task orders have become increasingly longer and more time

intensive. In addition, due to changing priorities at these companies themselves, many solicitations elicit minimal “competition” among the five companies. Frequently, only two proposals might be submitted in response to a given solicitation for bids. The lack of real competition has led to inefficiency and a decrease in the quality of work from the CTRIC partners. Lastly, by using different types of contracts and exploiting a full range of options to meet CTR’s needs, many officials and private sector actors believe that cost efficiencies and prospects for sustainability would be enhanced.

Recommendation

Such an immense amount of experience in the FSU region and CTR programs resides within the CTRIC companies and therefore, the CTRIC option should be maintained. However, we recommend that the CTR Directorate be given greater flexibility in the expansion of potential prime contractors beyond the CTRIC contracting pool. The CTR Directorate at DTRA should also be permitted to utilize the full range of contract mechanisms from direct contracts with other US Government entities or with host nation firms, to award/fee contracts, to fixed fee contracts, and incentive fees as needed to address changing requirements and opportunities on the ground.

13

RECOMMENDATION THIRTEEN: PAIR PROGRAM BUDGETS WITH PROGRAM PRIORITIES

Findings

The White House has made commitments to complete certain CTR programs by defined deadlines; however, these commitments have often not been matched with the requisite budgetary increases to meet the mandated schedule. Although the needed increases were championed by Senate leaders, to ensure that political commitments made by the White House could be implemented by the CTR Directorate there should be enough coherence within the Executive Branch that such disconnects do not arise. When political commitments are made by the White House and not executed, bilateral relations at the program implementation level are compromised and the effectiveness of CNP suffers.

Impact

Absent coordination within the Administration, Congress must act to increase the program budget to make a newly expedited deadline attainable. Absent congressional action, the CTR Directorate would be forced to skim the financial resources from other program areas to meet the desired date of completion. In one instance the needed adjustment exceeded US\$45 million—a significant amount considering that the entire Directorate’s budget is roughly US\$400 million for FY 2006 and will be significantly less in FY 2007.

Recommendation

We recommend that the National Security Council, Office of Management and Budget, and other relevant agency officials achieve sufficient interagency coordination to address such informational gaps and/or oversights in the budgeting process. This should be achievable with the adoption and implementation of Recommendation #2.

14

RECOMMENDATION FOURTEEN:

REMOVE RESTRICTIONS ON

CTR EXPENDITURES

Findings

In some cases, Congress has legislated a “ceiling” on the annual maximum allowable increases for particular program budgets. This constraint has impeded the wherewithal of the CTR Directorate to leverage particular opportunities where increases above the specified ceiling would be justified.

Impact

Russia and other states of the FSU have proven, at times, to be mercurial partners. When opportunities for cooperation avail themselves and US Government agencies have been able to respond rapidly, US security has benefited. In instances where rapid response is precluded by a “ceiling” within a program’s budget, there is likely a significant opportunity cost for not having proceeded with expansion of the program. The complexities of negotiating the parameters and objectives of a program with each host country are then accentuated by confronting a potential “funding gap” due to imposed ceilings and lengthy delay prior to implementation. These delays present the host country with an opportunity to rethink its position and potentially foreclose collaboration.

Recommendation

Congress should avoid imposition of a strict ceiling on annual maximum allowable increases in a particular CTR program budget. The CNP program has been most successful when afforded the longest leash on its activities. Oversight and control of budget growth can be maintained by conditioning increases above a particular ceiling on the satisfaction of specific criteria or notifications to, and approvals from, Congress prior to exceeding a particular percentage increase in an annual program budget.

15

RECOMMENDATION FIFTEEN:

PROMOTE TRANSPARENCY WITH

CAPITOL HILL AND THE MEDIA

Findings

As previously noted, interactions with Capitol Hill are strictly controlled by the Office of the Under Secretary of Defense for Policy. The CTR public affairs office remains in “passive mode” vis-à-vis the media, NGOs and the general public. We believe that this restrictive public affairs posture is ripe for rethinking. We conclude that the benefits of greater transparency with congressional audiences and the media outweigh the potential pitfalls—particularly given the dramatic return on investment these efforts have yielded the national security of the United States.

Impact

As one agency official put it “several committees on Capitol Hill ‘want to put their stamp’ on CTR programs, but too few understand how their actions will impact the programs.” At present, the public affairs office within Defense Threat Reduction Agency has not been allowed to be more proactive in its interactions with the media. This translates into an inability to highlight the successes of the threat reduction programs, instead assuming a passive, responsive posture leaving many with the false impression that these programs are fraught with controversy. This leads to Inspector General and Government Accountability Office reports which reaffirm Capitol Hill’s mistaken impressions on the vitality and benefits of these programs.

Recommendation

As mentioned in Recommendation #7, a mechanism for receiving ongoing briefings from the agency personnel involved in implementation would go a long way in creating the needed knowledge base on Capitol Hill, provide an alternative to excessive reporting requirements that stretch limited personnel capacity, and help mitigate congressional actions that create unnecessary impediments to these efforts. In addition, the DTRA public affairs office should be encouraged to take a proactive stance in working media channels to underscore the value of these programs to a broader public and Hill audience.

16

RECOMMENDATION SIXTEEN:

DEFINE AGENCY TURF AND

ELIMINATE CONFLICT

Findings

Turf battles involving NNSA and the State Department over specific programs/projects are not uncommon. This tension is complicated by the State Department's responsibility for negotiating implementing agreements (see Box #3, pp. 43-47) and DoE/NNSA's responsibility for executing projects. In the particular example of liability, several NNSA based programs have not been able to start new initiatives under ongoing program umbrellas until this issue is resolved. Although the State Department is responsible for negotiating the new provisions on liability, Congress is threatening to cut funding for DoE/NNSA programs that rely on resolution of the liability issue. Moreover, the dividing line between program negotiation and execution has, at times, been strained as the State Department is perceived to be encroaching upon NNSA's role as the implementing agency.

Impact

In certain instances, as outlined above, one agency's budget is being held at risk over an issue for which it does not have the responsibility. More frequently, however, delays in execution of a major project result from a lack of clarity as to when authority is passed between the State Department's conclusion of an agreement and DoE/NNSA's role in execution.

Recommendation

In order to eliminate ambiguity and promote continuity, the roles and responsibilities of each agency between the negotiation of an agreement and the program's execution must be clarified. Such clarification would flow from the ongoing interagency process outlined in Recommendation #2. With or without such a process, a vigilant and hands-on National Security Council official should be capable of playing the role of honest broker when such situations arise in order to clarify the transition of responsibilities and minimize the negative impacts on program execution.

17

RECOMMENDATION SEVENTEEN: PROMOTE SUSTAINABILITY AND LEVERAGE EXISTING PROGRAMS

Findings

Despite stalwart efforts to ensure the “sustainability” of NNSA’s nonproliferation efforts, attaining such objectives requires not only bridging a widening gap over threat perceptions with the Russians, but also ensuring that indigenous capacity exists to adequately sustain the systems and infrastructure the US has so painstakingly put in place over the course of the last fifteen years (see Recommendation #6). As one significant example, MPC&A site upgrades are slated to be complete by 2008 and entirely weaned from US Government support by 2013. NNSA is working to develop a comprehensive approach for the Russians to assume full ownership of these safeguard and security systems. However, NNSA program managers are acutely aware that the Russians do not view the threat from an improvised nuclear device (IND) to be a substantial challenge to international security. Their focus is rather on the threats posed by radiological dispersion devices (RDDs). This suggests that once US Government investments cease, the Russian Government may be unwilling to expend the necessary resources to sustain these important efforts. Moreover, in NNSA’s efforts to ensure sustainability, too little attention has been given to the possibility of leveraging other program areas to build the in-country capacity needed for servicing equipment, training personnel and promoting the desired “security culture.”

Impact

Weaning FSU countries from assistance prior to getting consensus on potential threats and building the in-country capacity to sustain the systems in place will threaten to nullify all US efforts to date. Unless the scope of ongoing sustainability efforts is broadened and programs that might contribute to creating in-country capacity are sufficiently integrated, redundancies and inefficiencies are likely to arise. In addition, the potential cost-savings and economies of scale attainable through a more holistic approach to sustainability across NNSA’s program areas—and all other US Government CNP activities—cannot be achieved.

Recommendation

DoE/NNSA should broaden the scope of sustainability efforts in order to cross-link existing programs including MPC&A, IPP, and the Megaports Initiative. NNSA activities should focus on the development of a robust nuclear security supply capacity to service its own needs and the needs of the host state as DoE's programs are sunset. This demand goes beyond spare parts and training modules to the promotion of a security culture adequate to maintaining program integrity once Western support is terminated. This approach requires the creation of incentives for suppliers to enter the nuclear security supply market and ensuring that those suppliers can meet international standards. Existing NNSA (and other US Government) programs to redirect scientists from weapons-related work to commercial sectors, especially those with industry already involved, could be exploited to foster the necessary nuclear security supply. Strategically pairing US security equipment suppliers with appropriate Russian counterparts also has the potential to create more competitive suppliers for the security equipment needed. Furthermore, US companies should be incentivized to facilitate "indigenization" of management skills and business practices requisite to ensure the in-country capacity to supply needed products and services. This recommendation is inextricably linked to Recommendations #6 and #8 above as well as #18 below.

Sustainability is not unique to DoE/NNSA efforts in Russia. Nor is it solely a concern with respect to assistance to Russia or limited to the nuclear sector. The recommendation above should be extended to a government-wide approach to sustainability of all CNP efforts across the FSU. This would require interagency consensus and ongoing collaboration (as outlined in Recommendations #1 and #2) in order to fully explore potential synergies and exploit existing programs to achieve US Government nonproliferation objectives. Creating the appropriate incentive structures to engage the US private sector as a key facilitator in meeting US Government goals is likely to require bigger budgets or reallocation of existing budgets in the short-term. However, increased financial means devoted to sustainability and exploiting redirect activities in the short-term will ensure that investments in CNP efforts to date are not wasted and will likely prove much more cost-effective in the long-term than alternative approaches.

18

RECOMMENDATION EIGHTEEN:

RECOGNIZE THE ROLE OF THE

PRIVATE SECTOR IN ADDRESSING

THE BRAIN DRAIN THREAT

Findings

Among DoE/NNSA's scientific engagement programs, the Nuclear Cities Initiative offered greater flexibility and quicker turnaround time from conceptualization to program start than other redirect options; however, access to the closed nuclear cities severely complicated industry involvement in creating sustainable commercial employment. Without direct ownership and access to the community of researchers within the closed cities, private sector partners are relegated to serving as temporary clients rather than permanent employers. The IPP program represents underutilized potential in fostering the partnerships that would redirect scientists into commercial employment. Its current structure, however, does not fully exploit the strengths of each party, resulting in unfunded mandates for the Laboratories, truncated control for the Industry Partners, and an unnecessarily circumscribed role for the US Industry Coalition in fully leveraging its membership's potential. Not only could the IPP program effectively double its current program budget to support existing opportunities, but expansion of the program to exploit "market pull" (as opposed to technology push) and engaging business as employers rather than customers of technology could enhance its nonproliferation impact, contribute to NNSA's sustainability efforts, and provide technologies for an array of US Government and other commercial demands.

Impact

NNSA's redirect efforts are not systematically achieving the job creation goals necessary to provide long-term employment to the target community. This reality impedes efforts to downsize the weapons complex. Furthermore, potential benefits beyond redirection of the talent and downsizing of the complex—economic development, capacity building, etc.—are not being fully realized.

Recommendation

Immediate actions to increase the flexibility and enhance performance of the programs include:

- Congress should change the budget cap of thirty-five percent (35%) involvement of labs in IPP due to its strain on the labs' capacity to provide adequate technical and managerial oversight.
- Congress and the Administration should begin experimenting with new redirect models that directly involve the private sector as employers outside of the erstwhile weapons institutes.
- DoE/NNSA should examine the role of its redirect efforts in creating the capacity to produce the products and services inherent to sustainability;
- DoE/NNSA should work with Congress and potential Industry Partners to craft appropriate incentives to engage industry to contribute to redirect efforts that target the nuclear security demands;
- IPP's "technology push" model should be matched by similar efforts that exploit "market pull"; in this vein, DoE/NNSA should specifically target collaborative efforts between industry and FSU weapons experts to meet demands generated by the Global Nuclear Energy Partnership and the Global Initiative to Combat Nuclear Terrorism, among others.
- IPP should be permitted to evolve to exploit new opportunities by making Lab participation customizable, contracting companies directly in support of US Government nonproliferation objectives, creating new mechanisms for funding start-ups or expanding existing businesses in the FSU that will hire former WMD specialists and recruiting new stakeholders such as MPC&A and SBIR.
- DoE/NNSA should commission a scoping study to determine the most expeditious path to achieving these objectives.

19

RECOMMENDATION NINETEEN:

ENHANCE EFFORTS TO INFORM CONGRESS

Findings

Too few Members and their staff on Capitol Hill understand in sufficient detail the successes and challenges of the nonproliferation work at NNSA. Despite being stretched thin by a steady stream of congressional reporting requirements, GAO inquiries, and the like, these mechanisms fail to adequately feed congressional oversight or more generally enhance the knowledge base of these programs on Capitol Hill.

Impact

Program managers' attention is constantly diverted by congressional reports or other "oversight" inquiries regarding their programs and thus can devote only too little time to actual management and implementation of the projects under their purview. Unfortunately, we conclude that the various forms these reports take are not conducive to the Capitol Hill audience—due to demands on staff time, reports are often ignored or reach only a very limited and self-selecting number of offices. In addition, the lack of in-depth knowledge by Members and their staff not only frequently breeds new reporting requirements but also can give rise to earmarks, restrictions to specific programs, or budgetary actions that are detrimental to the essence of the programs.

Recommendation

NNSA's efforts would benefit from the establishment of a new bicameral congressional Task Force (see Recommendation #7). A less robust undertaking than proposed in Recommendation #7 might be led by Members responsible for NNSA authorization and/or appropriations to initiate an off-the-record briefing series for interested Members/staff with NNSA officials, National Laboratory representatives and the business actors within specific program areas. Similar to the military services' congressional liaison offices on Capitol Hill, DoE/NNSA could also spearhead its own initiative to offer routine briefings for staff.

20

RECOMMENDATION TWENTY:

REMEDY THE NNSA CONTRACTING BOTTLENECK

Findings

The National Nuclear Security Administration Service Center, also known as the Albuquerque Service Center, provides a broad range of business, technical, financial, legal, and management advice and services to the NNSA. The Center's role in the current NNSA contracting process creates numerous hurdles and inefficiencies that impede rapid progress of program implementation. All contract requests for NNSA must be funneled through the Albuquerque Service Center, however, the Center is severely understaffed, relying on eight people to wade through more than US\$1 billion worth of contract requests. Also, the Service Center does not report to the NNSA Director of Contracts, but rather to the NNSA Administrator's office directly. This creates a complicated chain of command.

Impact

The inability to move contracts expeditiously through the Service Center creates hurdles similar to those experienced by DoD. Until the agencies are given an extended capacity to react to changing opportunities on the ground in the region, the program will not return to the enviable era of flexibility experienced in the early years of CTR which yielded rapid progress toward the defined strategic objective. In many cases, opportunities on the ground are lost due to the excessively slow pace with which contracts and decisions must churn through the bureaucratic decision making process.

Recommendation

NNSA should work with Congress to expand the capacity of the Albuquerque Service Center by increasing manpower and developing closer reporting ties between the Center and program managers within the Department of Energy.

21

RECOMMENDATION TWENTY-ONE: ELIMINATE UNNECESSARY FUNDING RESTRICTIONS

Findings

In the mid-1990s, the Congress placed a restriction upon DoE's ability to expend funding in support of its nonproliferation agenda. Appropriations for program execution (for instance, implementation of the GIPP, HEU downblending, or MPC&A) are held separate from program direction funding (for salaries, bonuses, training, and travel). Funds from one source cannot, by congressional mandate, be used to support the other. To our knowledge, the Department of Energy is the only US Government agency under such restriction.

Impact

Because recent appropriations in support of program direction have been very limited, and because funds are not interchangeable between accounts, salaries are a fixed expense, and training budgets are extremely limited, when shortfalls in program direction budgets occur—as they often do—travel budgets remain the sole source to borrow against. As such, NNSA oversight of activities throughout the FSU suffers accordingly.

Recommendation

Congress should immediately act to repeal this restriction on DoE funding.

22

RECOMMENDATION TWENTY-TWO: CREATE A US GOVERNMENT NONPROLIFERATION CLEARINGHOUSE

Findings

As mentioned in Recommendation #2, the diffusion of CNP activities across numerous agencies often leads to confusion regarding what agencies are operating at what sites or facilities toward what objectives. This information gap between US agencies has been amplified by the lack of timely information regarding the ongoing operations of other countries contributing to Global Partnership efforts. Although the State Department does have an official responsible for tracking and coordination of Global Partnership programming, many US Government agency officials are unaware that this position exists and therefore, do not adequately leverage information maintained by this office.

Impact

This lack of information sharing leads to confusion and duplication within US Government efforts. Furthermore, it neglects potential synergies between programs, and creates the very real possibility of host countries playing US Government programs and other G8 contributions off one another. Indeed, evidence suggests that host governments have become increasingly adept at cross negotiating with potential donor states.

Recommendation

We recommend that the State Department create an “information clearinghouse” for US Government-wide CNP activities. This office would have no *operational* authority over other US agency activities or programs. Its function would be to provide a focal point for collection and dissemination of information pertinent to all agency officials regarding the activities of their counterparts in other parts of the US Government. Critical to the success of this office would be the full participation of other government implementing agencies. Evidence gathered by this study suggests that both the Department of Energy and the Department of Defense would welcome this information sharing capability. Timely information regarding Global Partnership activities/objectives should also be made available through this office.

23

RECOMMENDATION TWENTY-THREE:

SHORE UP CAPACITY AT THE DEPARTMENT OF STATE

Findings

Even a casual survey of the State Department's Bureau of International Security and Nonproliferation (ISN) raises concerns regarding understaffing and the resources available to achieve their critical mission. Expansion of the State Departments "redirect" efforts to Libya and Iraq have created an internal competition for resources and stretched existing personnel capacity thin. Furthermore, the application of existing State Department redirect programs to regions outside the FSU without a thorough assessment of their efficacy in providing sustainable, civilian employment runs the risk of replicating a deficient model. The lessons learned from fifteen years of redirect efforts and the role of the private sector in creating sustainable employment opportunities for this scientific capacity should inform any US Government redirect efforts in regions beyond the FSU.

Impact

Retrofitting existing programs and establishing a functioning operation to engage scientific capacity in regions outside the FSU is a major undertaking. Without adequate resources, State Department personnel will find themselves unable to meet desired objectives on any front. Furthermore, the application of models with insufficient prospects for commercial job creation will result in a squandering of the minuscule resources made available for these non-FSU redirect efforts.

Recommendation

Ideally as a part of the global assessment outlined in Recommendation #1, redirect efforts should be prioritized according to the threats they represent. Budgetary needs should then be set accordingly. FSU-specific programs could be greatly facilitated by integrating the State Department redirect programs into the broader scope of US Government sustainability efforts and application of creative models to incentivize industry involvement as outlined in Recommendations #6 and #8. Programs such as BTEP could be reworked and expanded to absorb additional capacity and meet mutually identified needs in public health. Critical to success of these efforts, however, will be a reconceptualization of program execution based upon: (1) private sector

involvement as employers rather than clients; (2) direct ownership; (3) market pull; and (4) connectivity to other US Government programs. More effective use of non-government organizations, such as the Civilian Research and Development Foundation and its Industry Partnerships program or the US Industry Coalition, can serve as a means to create needed commercial linkages at the outset and enhance the Department's capacity to achieve its redirect objectives. Both CRDF and USIC have already been engaged to some extent, but their participation should be enhanced through a more rigorous process of assessing needs, defining their respective roles, and creating the mechanisms for integral participation in achieving the US Government's objectives.

24

RECOMMENDATION TWENTY-FOUR: RETHINK THE ROLE OF THE STCs, FACILITY CONVERSION, AND CRDF

Findings

The Science and Technology Centers continue to play an important role in providing FSU scientists with short-term grants for non-weapons related research. Recent research shows that a certain amount of “goodwill” results from Western assistance for basic research that would deter these scientists from contributing their knowledge to rogue states or terrorist organizations. This appears to be true regardless of whether this assistance leads to long-term sustainable employment.⁹⁰ Intelligence, supported by anecdotal evidence, suggests that the brain drain threat continues to pose a challenge to international security. The STCs contribution was particularly valuable in the early “emergency” phase of providing opportunities in order to keep this scientific capacity in place; similarly, they perform a valuable role for scientists whose skills are difficult to segue into commercially viable pursuits.

Unfortunately, however, the STCs have been slow to adapt themselves to the dramatically changed environments in which they now operate. Founded in the early 1990s and based on government-to-government agreements concluded at that time, they confront clear structural impediments in their ability to partner efficiently with industry and systematically promote sustainable commercial opportunities for the target community. The focus on scientists within the former WMD institutes themselves creates substantial difficulties in attempts to involve industry (due to access) and runs counter to US desires to facilitate downsizing the weapons complex—particularly through closure of “white elephant” facilities or those deemed to be in excess of real defense needs. In addition, industry participation in collaborative efforts funded by the International Science and Technology Center leads to excessive scrutiny by Russia’s Federal Security Service due to their concern that the ISTC’s non-profit, (*i.e.* tax free) status is being used by industry to circumvent legitimate taxation. While the BioIndustry Initiative was created to overcome these impediments and to formally partner with industry to generate sustainable opportunities, BII has also confronted substantial limitations in its ability to

⁹⁰ See Deborah Yarsike Ball and Theodore P. Gerber, "Russian Scientists and Rogue States: Does Western Assistance Reduce the Proliferation Threat?" *International Security*, Vol. 29, No. 4 (Spring 2005): 50–77.

systematically generate commercial opportunities for the bioscience community in these former weapons institutes. Again, the focus on the institutes as the place of continuing employment for these scientists would appear to create significant impediments to industry's potential involvement in creating sustainable opportunities. Similarly, while an emphasis on "conversion" of existing facilities may be valid in exceptional cases, this approach is tremendously expensive and may, in certain cases, be less efficacious than incentivizing green fields investments that would draw the scientific capacity into a commercially viable enterprise outside the weapons complex. While BII has yet to have an opportunity to prove its model of engagement, it has failed to learn the lessons from previous, failed efforts of engagement and conversion.

Impact

While serving a valuable role for a certain segment of the target community, the STCs do not have any long-term strategy to wean the institutes and scientists from Western assistance and offer an exit strategy from government support. In addition, providing short-term assistance to scientists within the former WMD complex, while valuable in the early years, does not lend itself to the eventual closing of state-owned facilities considered excess to the host-country's defense needs. The BII model is extremely risky and could prove to be an expensive and failed experiment.

Recommendation

As mentioned in Recommendation #8 (and #17 and #18 for DoE/NNSA-specific efforts), the two avenues for effectively engaging and leveraging the talent resident in the WMD complexes in the region are: (1) offering government support to meet mutually identified needs (e.g. the Biotechnology Engagement Program) where government agencies become sustained clients, or (2) offering innovative incentives to engage industry as potential employers. The specific action items directly applicable to State Department efforts include:

- Engage the G8 business communities and the FSU target community in a rigorous informational exchange regarding the types of expertise available and potential advantages of employing the target community;
- Bolster the capacity of CRDF's Industry Grants Program (First Steps to Market and Next Steps to Market) to increase private industry involvement in commercially viable initiatives;
- Bridge the gap between current program funding for everything up to prototype development (STCs and CRDF's Industry Grants Program) and actual commercialization of the technology by

- creating an international version of the SBIR program available to collaborative efforts between industry partners and FSU scientists;
- Find common cause across US Government Executive agencies including USAID, Health and Human Services, the National Institutes of Health, the Environmental Protection Agency and others to create an *a la carte* incentive structure to increase industry's participation as direct employers of the talent resident in the FSU that simultaneously supports other US Government objectives;
- Incentivize collaborative efforts between businesses and FSU weapons expertise to meet the "market pull" of US Government efforts and joint US-Russia initiatives.

25

RECOMMENDATION TWENTY-FIVE: ELIMINATE LEGISLATIVE IMPEDIMENTS TO PROGRESS

Findings

Reporting requirements place an excessive burden on already over-stretched capacity at the State Department. The reporting requirements of particular concern are those related to “certification” of compliance with arms control agreements and the annual Human Rights Report.⁹¹ According to officials at State, these two annual reporting exercises consume considerable time throughout the year.

Impact

The certification requirements have significant implications for ongoing CNP activities. The lack of permanent Presidential waiver authority creates an ongoing risk that if certification is not granted to a host country, all new CNP activities at DoD and the State Department come to a standstill until Congress can legislate such waiver authority and the President exercises this authority. In 2002, US refusal to grant certification led to a seven month standstill in executing any new projects.⁹²

⁹¹ Certification requirements were enacted in the original *Soviet Nuclear Threat Reduction Act of 1991* (Section 211) and *The Freedom Support Act* (Section 502), while Section 1308 of the *National Defense Authorization Act for Fiscal Year 2002* added specific certifications to chemical weapons destruction funds. The Human Rights Report requirements were originally enacted in the *Foreign Assistance Act of 1961* (Sections 116(d) and 502(B)). The *Foreign Relations Authorization Act of FY 1998-1999* changed the submission date from January 31 to February 25.

⁹² On March 23, 2002, the State Department notified Moscow that CTR assistance could not be certified due to Russia’s failure to comply with BW and CW treaties. The funding freeze affected DoD and State, but not DoE. On August 2, President Bush signed the *FY02 Supplemental Appropriations Act*, which gave him temporary waiver authority. He signed the waiver on August 7, however, the waiver only lasted until September 30, after which the funds were again frozen. On October 23, the President signed the *Department of Defense Appropriations Act for Fiscal Year 2003*, which granted him one year waiver authority for the CW destruction certifications. The *National Defense Authorization Act for Fiscal Year 2003*, which granted the President three year waiver authority for the CTR certifications, was signed on December 2. The President signed the waivers to release the funds on January 10, 2003. See David Smigelski, “An Overview of the 2002 CTR Certification Crisis,” RANSAC (April 2003), accessed at: <<http://www.ransac.org/Issues/U.S.-Russian%20Nonproliferation%20Programs/Threat%20Reduction%20Status%20and%20Issues/624200331947PM.html>>. Also, Christine Kucia, “Congress Gives Bush Three-Year Waiver for Threat Reduction,” *Arms Control Today*, Vol. 32, No. 10 (December 2002), accessed at: <http://www.armscontrol.org/act/2002_12/ctr_dec02.asp>; and Christine Kucia, “CTR Programs Get Boost With Budget Request,” *Arms Control Today*, Vol. 33, No. 2 (March 2003), accessed at: <http://www.armscontrol.org/act/2003_03/ctr_mar03.asp>.

Moreover, the conflict between US human rights and nonproliferation objectives created by congressional linkage of these issues remains an occasional impediment to the achievement of US national security goals. Recognizing that the threat of a weapon of mass destruction in the hands of a hostile state or terrorist organization is the greatest threat facing the United States today, the US Government should be cautious about linking core nonproliferation goals with other important but ultimately second tier goals.

Recommendation

Congress should amend provisions on certification to offer permanent Presidential waiver authority. If permanent waiver authority remains infeasible, Congress should align the timing of certification and the Human Rights Report to increase the efficiency of the State Department's achievement of these separate reporting requirements.

— 6 —

CONCLUSION

Since the end of the Cold War, no national security investment has been more cost effective or shown more tangible results than the suite of Cooperative Nonproliferation (CNP) initiatives encompassing the Cooperative Threat Reduction (CTR) programs at the Pentagon and the nonproliferation programs at the Departments of Energy and State—and now elsewhere in the Executive branch. In 2005 alone, more than 30 metric tons of highly enriched uranium—enough to fashion more than 1,200 nuclear warheads—were permanently transformed into fuel for use in civilian power plants across the United States. An additional 165 high priority storage sites containing vulnerable radiological material in Russia were secured, and over 300 former nuclear, chemical, and biological weaponeers found peaceful work. Through collaborative research grants with the highly skilled and underutilized community of former biological weapons experts in the FSU, new commercial and public health products were created to address the scourge of infectious diseases. G8 investments in the Global Partnership have hastened regional economic development by extending Western business practices to the former command economies in the region and introducing them to global markets. Burgeoning relationships between American and former Soviet scientists have sufficiently increased trust and transparency. Further, they have gone far to bury Cold War hostilities.

Despite these notable successes however, a survey of fifteen years of CNP operations suggests that progress not only has been limited by the low level importance accorded these efforts by the Executive Branch, but has been consistently stymied by a series of practical, political, and bureaucratic obstacles to effective implementation. Securing nuclear, biological, and chemical weapons, materials, and expertise is the most straightforward means to prevent an act of catastrophic terrorism involving a weapon of mass destruction. In spite of this near universal recognition and the broad array of efforts both inside and outside of government aimed at accelerating Cooperative Nonproliferation efforts, successive administrations and Congresses have failed to invest the necessary political capital and financial resources to ensure optimum performance of the CNP programs in the shortest possible timeframe. The result has been twofold. First, and most worryingly, the window of opportunity for terrorists to obtain the necessary materials to fashion a weapon of mass destruction has been—and remains—left open for an unacceptably long period of time. In our race with the terrorists to secure the weapons, materials, and expertise of proliferation concern, the United States government has opted for a donkey over a thoroughbred. Second, the failure of the United States and other

Western nations to recognize the unique capabilities and capacities resident within the phalanx of former weapons scientists, engineers, and technicians and to leverage them to address common threats to humankind represents a significant opportunity cost to future generations.

At its outset, the Cooperative Nonproliferation agenda was designed as an emergency “hard security” response to the rapidly disintegrating nuclear, biological, and chemically armed empire of the Soviet Union. Throughout its fifteen year history however, the CNP agenda has grown into an underappreciated but multifaceted toolkit capable of addressing a broad array of US foreign policy objectives from proliferation to economic development. Regrettably, we conclude that these tools have collided with a series of political realities in Washington that have resulted in a continuous failure to fully incorporate the benefits offered by CNP into the wider US foreign policy agenda. In order to reverse this cycle, we conclude that the terms of the debate surrounding CNP must be changed. This can only be achieved by building a strong constituency in support of the Cooperative Nonproliferation agenda that includes the White House, the Executive agencies, Congress, NGOs, and perhaps most importantly, the private sector. In developing this public private partnership in support of US national security interests, the business community can play a particularly important role. In support of the CNP agenda specifically, and if organized effectively, industry can serve as a powerful, informed, and visible constituency promoting the benefits of Cooperative Nonproliferation to legislators and the White House. We believe that the unity of the private sector in this critical area of US national security would elevate the Cooperative Nonproliferation toolkit in a manner that no other informed constituency has proven capable of doing. By devoting the necessary resources to help inform policymakers of the merits of the program, the business community can do well by doing good, simultaneously enhancing its bottom line and performing an important public service to the American people.

Ultimately, the role of the private sector extends far beyond the immediate national security and financial gains that could be associated with an accelerated and expanded CNP agenda. The public private partnership that we propose should serve as a model for leveraging the private sector directly in support of US foreign policy goals. The longstanding failure of both government and the private sector to cross-fertilize their thinking has promoted insular understandings of the role and functions of the other. While the latter often views the former as a disruptive force needing peripheral management, government, by and large, views the business world with equal suspicion and misunderstanding. Both result in a failure to recognize common goals and leverage one another in mutual support.

Our study found that by bridging this divide and promoting a new public-private partnership in national security, America's nonproliferation goals could be met more efficiently, rapidly, and sustainably while leveraging their contribution to address a broader panoply of US foreign policy objectives. Our main conclusions are summarized below.

1. In general, we concluded that the nonproliferation programs, as currently configured, are incapable of providing sufficient return on investment. Though much of the blame is rightly laid at the feet of the host governments which have often proven to be fickle and mercurial partners, the United States Government has erected its own barriers to success. We grouped these barriers into four broad categories: a lack of interagency collaboration, the mismanagement of expectations, a failure to provide effective congressional oversight, and a series of overly burdensome restrictions on program implementation. We further concluded that the programmatic barriers to success related to the scientist redirection portfolio are so vast and the threat so urgent that a more in depth assessment of these efforts is needed.
2. CNP efforts were born in an era of extreme uncertainty in the FSU. The result was a patchwork of initiatives that addressed immediate security challenges without long-term sustainability or cross-program integration. Though the strategic circumstances of the region have changed dramatically over the past decade and a half, no strategic rethink has occurred at the national level to determine how to maximize return on the national security investment made by the CNP programs. The development of a new plan that fails to build on existing initiatives, however ingenious, is ultimately insufficient. The time is ripe for a government wide review of all CNP activities involving host governments, Congress, the agencies, and the private sector. Unless the parochial mindset within the implementing agencies can be broken down to ensure prudent prioritization of activities and budgets, the CNP programs will continue to underperform. We therefore call for a new integrated trilateral structure supported by an information clearinghouse at the Department of State, a budgeting oversight office within Office of Management and Budget at the White House, and a "court of last resort" at the National Security Council to promote efficiencies and maximize return on investment.
3. The Cooperative Nonproliferation agenda rests on a foundation of trust and transparency. When these are maximized, the programs operate at peak efficiency. When they are lacking, implementation of the programs is arduous. Joint planning at all stages of program development and

implementation fosters a sense of partnership that has proven crucial to program success. Consequently, the Executive agencies should work both at home and abroad to manage the expectations of all relevant parties from Congress to host governments. Only by ensuring their sustained buy-in can the CNP agenda be accelerated and its critical national security mission be achieved.

4. The United States Congress is an overburdened institution. Responsible for the oversight of literally thousands of US government programs with insufficient staff and vastly reduced internal support, Capitol Hill is as strained a partner as it is a critical actor for CNP implementation. The contravening pressures upon Congress result in too few effective leaders and a lack of interest and dedication to the CNP issue. Exercises to cull pertinent information from the agencies on the execution of the programs more often than not yield numerous reports that are not received in a form conducive to Capitol Hill's absorptive capacity for information, or worse, that fail to find an audience receptive to the message. Still, even the most cursory examination of the CNP programs reveals that the Executive agencies charged with their implementation—the Departments of Defense, Energy, and State—all suffer under the burden of excessive congressionally-mandated reporting requirements. This has not only slowed implementation, it has threatened innovation by constraining the flexibility of programs to take advantage of emerging opportunities on the ground. We conclude that many of these restrictions could be rethought or adjusted without a deleterious effect on oversight or program management. Moreover, Capitol Hill's need for rapid quantifiable progress is oftentimes at odds with the very nature of the programs. As the evolution of the programs moves from infrastructure elimination to capacity development, this gulf will widen. The mechanisms of Congressional oversight over the Cooperative Nonproliferation agenda must be rethought and both the Executive branch and the Congress must be prepared to accommodate the needs of the other to ensure more effective and rapid implementation of the programs.
5. The stated objective of all current programs focused on the nonproliferation of expertise is to redirect permanently former WMD specialists. Unfortunately, as currently configured, none of the existing programs is designed to systematically create the new jobs necessary to sustainably engage weapons experts and thus achieve this objective. Additionally, existing programs fail to exploit fully the range of potential “spin-off” benefits that could be derived from sustainable engagement and employment. As a result, the United States government is not maximizing

the return on its national security investment through the portfolio of scientist redirect programs at the Departments of Defense, Energy, or State. Many of the existing redirect programs were designed to produce collaborative research rather than jobs. Unfortunately, research—especially basic research—does not inevitably lead to sustainable employment of the community of experts of proliferation concern. All of the existing programs continue to work through the erstwhile weapons facilities in the states of the former Soviet Union by keeping the target community locked into employment at these facilities. Not only does this hinder the rationalization of the bloated former weapons institute structure across the FSU, state enterprises throughout the region have, by and large, proven incapable of restructuring themselves into commercially viable businesses, and thus, long term employers. Only by engaging the private sector directly as employers of the target community can the current short term “redirect” programs be transformed into long-term “engagement” programs and serve the nonproliferation goals of the United States Government. At present, no tool in the US nonproliferation arsenal can effectively marshal the necessary communities for efficacious, cost-effective, and sustainable models of scientific engagement better than the Civilian Research and Development Foundation.

At funding levels of just over US\$1 billion annually, the return on investment on the Cooperative Nonproliferation programs has been incalculable—not only in terms of weapons destroyed and potential terrorist incidents averted, but in much broader terms of relationship building, scientific exchanges, economic development, new product development, commercial growth, rule of law, and democracy and peace building. Yet, despite these proven successes, these collaborative efforts have never been afforded the financial resources or the political support they warrant. This study provides the roadmap for extracting the full value out of the CNP programs in support of US foreign policy objectives. There is no greater threat to global security than the diffusion of nuclear, biological, and chemical weapons. Without an integrated approach to securing inventories of WMD materials and expertise in the world, the US will have failed to realize its primary national security imperative—keeping the ‘world’s most dangerous weapons out of the hands of the world’s most dangerous people.’

ANNEX A: **COOPERATIVE NONPROLIFERATION** **SCORECARD**



DEPARTMENT OF DEFENSE COOPERATIVE THREAT REDUCTION (NUNN-LUGAR) PROGRAM

- 6,934 of 13,300** nuclear warheads deactivated
- 633 of 1,473** intercontinental ballistic missiles (ICBMs) destroyed
- 485 of 831** intercontinental ballistic missiles silos eliminated
- 80 of 442** mobile intercontinental ballistic missiles launchers destroyed
- 155 of 233** strategic bombers eliminated
- 906 of 906** nuclear air-to-surface missiles (ASMs) destroyed
- 436 of 728** submarine launched ballistic missile (SLBM) launchers eliminated
- 595 of 936** submarine launched ballistic missiles eliminated
- 30 of 48** ballistic missile submarines (SSBNs) destroyed
- 194 of 194** nuclear test tunnels/holes sealed
- 319 of 620** nuclear weapons transport train shipments
- 12 of 24** nuclear weapons storage site security upgrades
- 7 of 36** Threat Agent Detection and Response (TADR) epidemiological monitoring stations built and equipped
- 96.2%** of the Chemical Weapons Destruction Facility (CWDF) is designed
- 49.5 %** of the Chemical Weapons Destruction Facility is constructed



DEPARTMENT OF ENERGY NONPROLIFERATION PROGRAMS

- 37 of 39** Navy nuclear warhead sites with completed security upgrades
- 11 of 11** Naval sites storing nuclear fuel and other materials secured
- 14 of 25** Strategic Rocket Forces (SRF) sites with security upgrades
- 156 of 600** tons of nuclear material have received comprehensive security and accounting upgrades
- 8.6 of 17** metric tons of highly enriched uranium converted to low enriched uranium under the Material Consolidation and Conversion program
- 434** transportation overpacks for nuclear material manufactured
- 169** trucks for nuclear material transportation hardened
- 72** railcars for nuclear material transportation hardened
- 78 of 120** strategic border crossings, airports, and seaports in Russia outfitted with radiation detection equipment
- 500+** Customs nuclear and radiological material specialists trained
- 14 of 70** Megaports equipped (or in process of being equipped) with radiation detection equipment
- 147 of 230** Russian buildings containing nuclear material secured
- 285 of 500** metric tons of highly enriched uranium rendered useless for weapons under the HEU purchase agreement
- 400+** radiological sites secured around the world
- 4,000+** new peaceful, civilian jobs have been created through cooperative programs



DEPARTMENT OF STATE NONPROLIFERATION PROGRAMS

58,000 former weapons scientists and engineers redirected to peaceful research through the International Science and Technology Center

13,000 former weapons experts engaged by the Science and Technology Center of Ukraine

35 former bioweapons facilities received/receiving training on intellectual property, international regulatory standards, and commercialization through the BioIndustry Initiative

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ABOUT THE COOPERATIVE NONPROLIFERATION PROJECT

The Cooperative Nonproliferation Project at the Henry L. Stimson Center offers innovative, functional approaches to address the most significant threat to international security today: the spread of weapons of mass destruction. It seeks to bridge the gap between traditional ‘hard’ security (proliferation) and ‘soft’ security objectives (capacity-building, global development and public health). We partner with the public and private sector—an under-exploited resource—to achieve mutual security and development objectives. Only by exploring and leveraging all available means to address the growing threat of proliferation can we begin to treat its causes rather than its symptoms.