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U. S. - Russian Nuclear Cooperation: Actionable Intelligence

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This paper was completed as an independent research project in the Advanced Research Program, Center for Naval Warfare Studies, U.S. Naval War College. It is submitted to the faculty of the Naval War College in partial fulfillment of the academic requirements for the degree of Master of Arts in National Security and Strategic Studies. As an academic study completed under faculty guidance, the contents of this paper reflect the author's own views and conclusions, based on independent research and analysis. They do not necessarily reflect current official policy of any department or agency of the U.S. government.

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THE AUTHOR

Tom Armbruster first traveled to Russia in 1975, trading his senior year in high school for a chance to live with an American Foreign Service family. Leaving Hawaii and a career in journalism, Tom joined the State Department in 1988 and was assigned as Deputy of the Soviet Posts Support Office in Helsinki. Tom may be the only American diplomat to arrive in the Soviet Union by kayak, having paddled from Helsinki to Tallinn in 1990 with a group of Finnish kayakers. He was the lead American negotiator for the U.S.-Russian Memorandum of Cooperation in Natural and Man-Made Technological Emergency Prevention and Response, signed in July 1996. From 1997-1999 he served as Nuclear Affairs Officer at the U.S. Embassy in Moscow. Other assignments include Consular Officer in Havana, Cuba; Polar Affairs Officer in Washington, DC; Political Officer in Moscow; a one-month assignment to Kabul, Afghanistan; and Principal Officer of the U.S. Consulate in Nuevo Laredo, Mexico. Tom has a Master's Degree in International Relations from St. Mary's University, San Antonio, Texas, and a BA in Political Science from McDaniel College, Westminster, Maryland. He will be the Deputy Chief of Mission of the U.S. Embassy in Dushanbe, Tajikistan starting in July 2004 and will be joined by his wife Kathy. Children Bryan and Kalia Armbruster attend colleges in the United States.

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One can argue with the findings and conclusions of this report, but not with the impeccable logic of my choosing a librarian as a wife 23 years ago. Now if I can just get her to check my footnotes along with putting up with all-consuming projects like this one. At the Naval War College it was my good fortune to have as an advisor Bill Martel, a contributor to *Cooperative Denuclearization,* one of the landmark academic works on U.S.-Russian nuclear cooperation. Other friends and colleagues at the War College who helped this project along include Carnes Lord, Catherine Kelleher, Pat Cormier, Ron Oard, John Hodell, Sergei Khrushchev, Tom Grassley, and John Maurer. I have the greatest respect for the leaders in this field, in and out of government from the U.S. and Russia, who spent time with me. Those include: Tom Moore, Rose Gottemoeller, Matthew Bunn, Steven Aoki, Igor Khrupinov, Bob Senseney, Elena Sokova, Jim Timbie, Laura Holgate, Michael Curry, Kenneth Luongo, Susan Koch, Eric Sterner, Jim Reid, Leonard Spector, Thomas Graham, Nikolai Sokov, Bill Hoehn, and Vladimir Rybachenkov. Finally, my thanks to the professionals who chose not to speak for attribution who deal with this issue every day and often worry about it in the middle of the night. The U.S. and Russia are lucky to have such dedicated experts.

U.S.-RUSSIAN NUCLEAR COOPERATION: ACTIONABLE INTELLIGENCE

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The greatest threat before humanity today is the possibility of secret and sudden attack with chemical or biological or radiological or nuclear weapons. President Bush, Remarks, February 2004, National Defense University, February 11, 2004.

I. Introduction: How Imminent a Threat?

U.S.-Russian nuclear cooperation reflects the tension present in virtually every important foreign policy decision between our worst fears and best hopes. Our *worst fear* is that terrorists gain possession of a nuclear weapon or fissile material for use against the United States. Our *best hope* is that the U.S. and Russia, former adversaries, collaborate to reduce the risks inherent in the vast nuclear complex that rests on Russia's uncertain economic and political landscape.

President Bush has remained firm that terrorists equipped with weapons of mass destruction represent the nation's gravest threat. If that is the number one priority of the United States, then the money spent annually on nuclear cooperation with Russia is arguably the most important billion and a half dollars in the U.S. budget.[1] It is certainly funding directly targeted at the threat. Accepting the gravity of the threat, a number of questions follow. How does the U.S. accelerate the pace and shorten the duration of Nunn-Lugar Cooperative Threat Reduction (CTR) programs.? Is there sufficient political and public support to sustain Nunn-Lugar projects for the number of years required to get the job done? Should the funding and scope of cooperation be expanded? Where does CTR fit in the global nonproliferation effort?

[1] The Nuclear Threat Initiative (NTI) estimates the combined FY 2005 budget for cooperative threat reduction programs for the Departments of State, Energy, and Defense will be $1.649 billion. www.nti.org, accessed 13 April 13, 2004.

Some observers, including Harvard's Graham Allison, state flatly that "there is a substantial probability that within the next decade an act of nuclear terrorism will occur."[2] Nonproliferation experts at Harvard have concluded that the threat that terrorists could "acquire and use a nuclear weapons in a major U.S. city is real and urgent; that the most effective approach to reducing the risk is to secure nuclear weapons and material at their source; and that there is a substantial gap between the urgency of the threat and the pace and scope of the current response."[3] There is not a synoptic view of the nature of the threat, or the way forward. If there is any consensus, it is that nonproliferation issues are enormously complex.

The "Soviet Nuclear Threat Reduction" or "Nunn-Lugar" Act signed in 1991 contained three key Congressional findings:

> (1) Soviet President Gorbachev has requested Western help in dismantling nuclear weapons, and President Bush has proposed United States cooperation on the storage, transportation, dismantling, and destruction of Soviet nuclear weapons;
>
> (2) that the profound changes underway in the Soviet Union pose three types of danger to nuclear safety and stability, as follows: (A) ultimate disposition of nuclear weapons among the Soviet Union, its republics, and any successor entities that is not conducive to weapons safety or to international stability; (B) seizure, theft, sale, or use of nuclear weapons or components; and (C) transfers of weapons, weapons components, or weapons know-how outside of the territory of the Soviet Union, its republics, and any successor entities, that contribute to worldwide proliferation; and
>
> (3) that it is in the national security interests of the United States (A) to facilitate on a priority basis the transportation, storage, safeguarding, and destruction of nuclear and other weapons in the Soviet Union, its republics, and any successor entities, and (B) to assist in the prevention of weapons proliferation.[4]

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[2]Allison, Graham. "Not If but When: Imagining a Nuclear 9/11." Online posting. 23 Oct. 2002. In the National Interest. 5 Apr. 2004 http://www.inthenationalinterest.com.

[3] Bunn, Matthew , John P. Holdren, and Anthony Wier. Controlling Nuclear Warheads and Materials: A Report Card and Action Plan. Cambridge, Massachusetts: President and Fellows of Harvard University, 2003. viii-ix. For the most recent practical guide to accelerating the pace of US-Russian nuclear cooperation see Overcoming Impediments to US-Russian Cooperation on Nuclear Nonproliferation: Report of a Joint Workshop. Washington, DC: National Academies P, 2004.

[4] H.R. 3807 (PL 102-228) 27 November 1991, 102nd Congress of the United States.

The Departments of Defense, Energy, and State all have programs funded by this legislation. Republican Richard Lugar (R-IN) and Democrat Sam Nunn (D-GA) spearheaded the bipartisan legislation and remain champions of the concept and related projects. Nunn-Lugar programs have accomplished many of the original goals, but the program can be judged a success only after every gram of the hundreds of tons of available plutonium and highly enriched uranium (HEU) is accounted for and secured. That is a high standard, but if even a small amount of Russian fissile material is used by a terrorist for an attack, the program will be deemed a failure.

The Cold War produced an enormous quantity of fissile material and, as nonproliferation expert Leonard Spector put it, the weapons became more "symbols," than components of a rational military strategy.[5] The "mountain" of weapons of mass destruction that the U.S. and Russia must now dispose of is seen by terrorists as a gold mine, and there is clear evidence that they have gone prospecting, including "casing" Russian nuclear facilities.[6] Had the nuclear arms race been limited to say 1,000 weapons on both sides, the Nunn-Lugar nonproliferation goals would be realized today.

Ten years after the signing of CTR legislation in 1991, the September 11, 2001 attack provided fresh urgency, as the world witnessed American vulnerability. The Nuclear Threat Initiative (NTI) organization has a publication with these words on the cover: "The day after an attack... what would we wish we had done? Why aren't we

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[5] Leonard S. Spector, Deputy Director of the Monterey Institute of International Studies' Center for Nonproliferation Studies. "Author interview, Washington, D.C., 31 March 2004.

[6] From Bill Keller, "Nuclear Nightmares," *New York Times Magazine*, 26 May 2002: "Gen. Igor Valynkin, commander of the 12th Main Directorate of the Russian Ministry of Defense, the Russian military sector in charge of all nuclear weapons outside the Navy, said recently that twice in the past year terrorist groups were caught casing Russian weapons-storage facilities. But it's hard to know how seriously to take this. When I made the rounds of nuclear experts in Russia earlier this year, many were skeptical of these near-miss anecdotes, saying the security forces tend to exaggerate such incidents to dramatize their own prowess (the culprits are always caught) and enhance their budgets."

doing it now?"[7] Government officials are generally more optimistic than NGO's and academics about the likelihood, or as some put it, the "inevitability" of an attack. U.S. officials see the highly enriched uranium deal, access controls, accounting, cameras, and fences in Russia contributing significantly to global security. They believe the Russians *themselves* see the problem as affecting their own national security, given the Chechen situation. Congressional sources, skeptical of U.S.-Russian cooperation, say considerable resources have been spent and effective measures have been taken at many facilities, but "we still don't feel much more secure." In fact, a warhead transport expert said he "loses more sleep" now than in 1995 because of the slow pace of the program. He said the only reason terrorists have not succeeded at some Russian sites is because they have not tried.

Some consider such dire characterizations of the threat irresponsible, and perhaps politically motivated, since many NGO leaders were in government during the Clinton Administration. As a senior DOE official put it: "There are only so many times you can say act now or the puppy will die." Russian observers have suggested that there are also vested bureaucratic interests in both sides that in effect "lobby" for their programs. But no one after 9/11 disputes that there *is* a threat. The magnitude and immanence is the question. One official interviewed for this report said the response to the current nuclear terror threat is reminiscent of the response to al-Qaeda prior to 9/11: there is a lot of talk about it, but not a sense of urgency and marshalling of resources to prevent "the unthinkable." A commission looking at the aftermath of a radiological attack, the official says, would find much in current policy to answer for. In that sense, the warning and recommendations of the experts constitute "actionable intelligence."

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[7] "2002 Annual Report: The Day after an attack... What would we wish we had done? Why aren't we doing it now?" Washington, D.C.: Nuclear Threat Initiative, 2002.

For International Atomic Energy Agency Director Mohamed ElBaradei, the combination of "a polarized world, the proliferation of nuclear technology, and the proliferation of terrorism" has fundamentally changed the world and the international community must "adjust, augment, and strengthen our defense."[8] The United States and Russia are key partners in this effort.

This report looks at some of the major U.S.-Russian nuclear cooperation programs, examines the Russian view, addresses ways to accelerate the program and break a legal impasse currently threatening at least two major initiatives. It will consider how U.S. domestic politics, the recent reorganization of the Russian government and the downsizing of the once powerful Ministry of Atomic Energy affect nuclear cooperation. The report considers the U.S.-Russian bilateral relationship, the G-8's entry into nuclear assistance, and the impact of the U.S. nuclear strategy on nonproliferation. Controversy over environmental remediation is also examined. The report begins with a look at the origins of nuclear cooperation and considers whether the U.S. missed an early opportunity to significantly reduce Russia's nuclear complex.

[8] Charbonneau, Louis. "U.S., Russia Work with U.N. on Global Nuke Threat." Reuters Alert Net 26 May 2004.

II. Origins of Nunn-Lugar Programs

Did the West squander an opportunity to transform Russia in the early 1990s and "denuclearize" the former Soviet Union? Many Russian academics think so. There were proposals from both sides to make drastic cuts and trade nuclear weapons for massive economic assistance. Just before the fall of the Soviet Union, Soviet President Gorbachev, reformer Grigory Yavlinsky, and Harvard's Graham Allison, called for a "grand bargain":

> ...To help transform the Soviet Union would certainly be more difficult than the challenge undertaken by the United States through the Marshall Plan. It would at best take many years to accomplish. It could not be done on the cheap. Nevertheless, there are more than enough reasons of self-interest and values to try. Given the frantic pace of events and imminent dangers in the Soviet Union, there is not a moment to lose.[9]

After the August, 1991 Russian coup attempt, Allison reiterated the urgency of providing "$15 to $30 billion" a year in assistance. "The terms of the Grand Bargain remain unchanged. Substantial Western support and financial assistance to motivate and facilitate Soviet reforms strictly conditioned upon the political and economic transformation of that vast conglomerate."[10] Part of the bargain included "defense conversion," i.e., significant cuts in nuclear weapons and the nuclear complex.

Many in government today believe the grand bargain was too grand—too ambitious and too soon. Others interviewed in Washington said it was strictly "ivory tower." But Senator Lugar himself credits the "ivory tower" with the genesis of Nunn-Lugar programs[11] in the form of the landmark work "Cooperative Denuclearization."[12]

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[9] Allison, Graham, and Robert Blackwill. "On with the Grand Bargain." Washington Post 27 Aug. 1991.
[10] Ibid.
[11] Tom Moore, Senate Foreign Relations Staffer, Author Interview, Washington, DC, 29 March 2004.
[12] Allison, Graham, et al. "Cooperative Denuclearization." CSIA Studies in International Security 2. Harvard University, (1993).

Experts contend a grand nuclear deal *was* possible early on. One arms control official said the Russians probably would have given up everything but their active inventory of nuclear weapons. That would have meant that hundreds of tons of Highly Enriched Uranium (HEU) and plutonium could have been purchased in the early 1990's.

In the late 1990's, Igor Khripunov, now Associate Director of the Center for International Trade and Security at the University of Georgia and formerly a Soviet diplomat, drafted an editorial in Russia calling for a deal exchanging nuclear *disarmament* for economic assistance. Then, in March of 1999, NATO bombed Yugoslavia to prevent "ethnic cleansing" by the Serbs. Khripunov says "the political situation changed overnight. as Russians demonstrated in protest in front of the American Embassy." The hope that the U.S. and Russia could handle international crises together as strategic partners evaporated in Russia. Even today, Russians believe the U.S.-led bombing was misguided.[13] Afterwards, the U.S. was no longer seen as "benign" and Khripunov withdrew his idea.[14]

Grand plans are still alive. Sandia National Laboratory Director C. Paul Robinson believes it is not too late for such an effort:

> I still worry, however, about the proliferation of nuclear materials and technologies from Russia, because in many respects it's a Third World nation now, and in the Third World everything is for sale. I regret that as a nation we haven't been bolder in developing a Marshall Plan for Russia that would help it reach at least a minimum level of prosperity, which is the best antidote to that kind of proliferation.[15]

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[13] In "Pravda" Professor Vladimir Volkov writes: "The Western powers, which spoke about their desire to prevent a humanitarian catastrophe in Kosovo, actually provoked it." 23 March 2004. "Kosovo Crisis Can Engulf the Whole Balkans." https://newsfromrussia.com, accessed 22 April 2204.
[14] Telephone Interview 15 April 2004.
[15] Kitfield, James. "Pros and Cons of New Nuclear Weapons Debated." Online posting. 18 Aug. 2003. Government Executive Magazine. 28 Apr. 2004<www.govexec.com>.

Congressmen Jerrold Nadler of New York this year proposed legislation to purchase Russia's excess fissile material for $30 billion,[16] keying his request on the January 2001 study entitled "A Report Card on the Department of Energy's Nonproliferation Programs with Russia," by Howard Baker, Lloyd Cutler, Gary Hart, Sam Nunn, Susan Eisenhower, and others. The "Baker-Cutler Report" states:

> The most urgent unmet national security threat to the United States today is the danger that weapons of mass destruction or weapons-usable material in Russia could be stolen and sold to terrorists or hostile nation states and used against American troops abroad or citizens at home. This threat is a clear and present danger to the international community as well as to American lives and liberties.[17]

Most observers see the "golden opportunity" for a "grand deal," swapping U.S. assistance for significant arms reductions, safeguards for nuclear materials and facilities, and assurances that nuclear expertise would not be "leaked," as occurring in the early days, especially in 1992. As Elena Sokova of the Monterey Institute of International Studies diplomatically put it, the immediate post-Cold War period was "under-utilized by the U.S."[18] A key Senate staffer said a Marshall Plan for Russia in the early 1990's would have been "incredibly smart." Many believe that by 1995 the window of opportunity for historic cuts and a truly bilateral security arrangement was indeed closed. Still, Nunn-Lugar work went on, and has proven to be remarkably resistant to the swings of mood in Washington and Moscow. The political barometer can fall, but the programs continue.

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[16] "Nadler Calls for Increased Efforts to Fight Nuclear Proliferation," Press Release, Office of Jerrold Nadler, (D-NY), 11 February 2004.

[17] "A Report Card on the Department of Energy's Nonproliferation Programs with Russia," Howard Baker, Lloyd Cutler, Co-Chairs, Russia Task Force, The Secretary of Energy Advisory Board, United States Department of Energy, 10 January 2001.

[18] Elena Sokova, Director, Newly Independent States Nonproliferation Program, Monterey Institute of International Studies, Telephone Interview, 24 March 2004.

The grandest vision did not take place, but the early 1990's were still exciting times for U.S. diplomats, DOE scientists, and DOD officials looking at Russia. A tremendous amount of good work was done. All nuclear weapons were transferred from Kazakhstan, Belarus and Ukraine to Russia. Jim Timbie, Senior Adviser to the Under Secretary for Arms Control and International Security at the State Department, was one of the first Americans to visit a Russian nuclear facility in January, 1992. The Russians, Timbie says, were also excited and thought the cooperation would make a big difference in Russia's uncertain future, especially since there was $400 million available.[19]

The early euphoria did not last long. The legislation called for the money to be taken from existing Department of Defense accounts. That meant *American* contractors were paid to blow up silos and cut up missiles, rather than Russian workers. Timbie says the U.S.-Russian relationship never fully recovered. There is a perception in Russia, even now, that although millions of dollars may be slated for Russian projects, only a small percentage of the money stays in Russia.

Many policymakers and academics deserve credit for the genesis of the Nunn-Lugar programs and certainly those involved could be justifiably called the "Wise Men and Women" of that period. To have been "present at the creation" one could have attended one of a number of academic conferences, or, have been a member of the team at Harvard that produced two influential studies, "Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union" and "Cooperative Denuclearization: From Pledges to Deeds."[20]

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[19] Jim Timbie, Senior Advisor, U.S. State Department, Author Interview. 29 Mar. 2004.
[20] Campbell, Kurt M., et al. "Soviet Nuclear Fission." CSIA Studies in International Security 1. Harvard University, (1991) and Allison, Graham , et al. "Cooperative Denuclearization." CSIA Studies in International Security 2. Harvard University, (1993), p. 282.

The U.S. did not follow all of the prescriptions of the Harvard study and, in fact, some adopted recommendations may have complicated the process, such as conditioning western aid to "uninterrupted achievement of the denuclearization milestones." Linkages that are politically charged are difficult to avoid, but participants of a National Research Council study found that "because the U.S.-Russian cooperative programs meet vital interests of both countries, linkage of their implementation to any extraneous political condition seemed counterproductive."[21] The counter argument, however, is more persuasive. Transparent linkages provide an explicit contract and allows each side to bargain for advantages. Even if conditioning assistance mixes diplomatic signals and slows denuclearization, progress can still be measured by Harvard's action agenda, e.g.:[22]

- Removal of legal barriers to necessary exchanges of technical information and forms of assistance in a program for cooperative denuclearization;

- Construction of additional warhead dismantlement facilities and storage capacity for weapons, pits, and fissile materials, as required, and modification (consistent with safety and security) of business-as-usual dismantlement procedures to achieve the safe and secure dismantlement to pit level of all surplus nuclear weapons within three years;

- Establishment of plans and new operational capabilities for combined international responses to nuclear terrorism;

By 1994, the concern was not so much who controlled "the button" but rather "loose nukes," i.e., poor security at nuclear facilities with weapons and/or fissile material.

Matthew Bunn at Harvard says the U.S. Embassy in Moscow produced a cable called "Holes in the Fence" that caught the attention of Washington and provided new

[21] Berry, R S, ed. Overcoming Impediments to US-Russian Cooperation on Nuclear Non-Proliferation: Report of a Joint Workshop. Washington, DC: National Academies Press, 2004, p. 4.

[22] "Cooperative Denuclearization," p. 282.

direction for Nunn-Lugar programs.[23] Congress codified the threats identified in the Harvard study and elsewhere in the 1996 "Threat Findings of the Nunn-Lugar-Domenici Act." The 26 findings should also provide a lasting basis for cooperation as long as the threats identified persist.

Some of the threats have in fact ameliorated. For example: "The President has identified North Korea, Iraq, Iran, and Libya as hostile states that already possess some WMD and are developing others."[24] Clearly, Iraq and Libya do not represent the threat envisioned in 1996. However, most of the findings relating to Russia remain in force. The report found that "The former Soviet Union produced and maintained a vast array of nuclear, biological and chemical weapons of mass destruction" and retained the capability of producing more. The report cited deficiencies in command and control systems, accountability for weapons and border control and noted organized crime's prevalence in the former Soviet Union and the possible smuggling of nuclear, radiological, biological or chemical weapons. "As a result of such conditions, the capability of potentially hostile nations and terrorist groups to acquire nuclear, radiological, biological, and chemical weapons is greater than at any time in history." Finally, the report stated that "Foreign states can transfer weapons to otherwise aid extremist and terrorist movements indirectly and with plausible deniability."

Since that report was issued, the Nunn-Lugar program has continued to make significant progress with thousands of warheads and hundreds of intercontinental missiles destroyed. There is even a "scorecard" listing all of the tangible consequences of the

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[23] Matthew Bunn, Senior Research Associate, Belfer Center for Science and International Affairs, Harvard University, Author Interview. 26 Mar. 2004.
[24] Threat Findings of the Nunn-Lugar-Domenici Act, Section 1402 of the Defense Against Weapons of Mass Destruction Act of 1996 (PL 104-201), September 23, 1996.

Cooperative Threat Reduction program.[25] However, U.S. nuclear cooperation with Russia is not akin to a construction project or a Superfund cleanup project. If that were the case, this report could take a "project management approach" and deal with the number of tons of plutonium and highly enriched uranium to be disposed of, the number of facilities requiring security upgrades, and the number of nuclear scientists retrained for civilian work. The report could estimate the cost of doing the work and the expected duration and could formulate a critical path timeline with milestones and potential pitfalls.

U.S.-Russian nuclear cooperation is not a simple line item in the budget. It is rather one of the most complicated issues in the U.S. Government, involving high-level diplomacy, intense domestic politics, environmental issues, conflicting views of history, emotions from the Cold War, arms control, energy policy, the Departments of State, Defense and Energy, and now the G-8 member countries. Some have called for a "Nuclear Czar" to take on this vast undertaking.[26] To be successful, that person would have to be well-versed in all of those issues, as well as understand at least some of the technicalities involved with individual CTR programs.

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[25] The Nunn-Lugar "Scorecard:" 6,282 Former Soviet nuclear warheads separated from missiles; 529 Intercontinental ballistic missiles (ICBM) destroyed; 458 ICBM silos eliminated; 8 ICBM mobile launchers destroyed; 124 Strategic bombers eliminated; 668 Nuclear air-launched cruise missiles destroyed; 408 Sea-launched ballistic missile (SLBM) launchers eliminated; 474 SLBMs eliminated; 27 Strategic missile submarines destroyed; 194 Nuclear test tunnels/holes sealed; 40,000 Metric tons of chemical weapons stored in seven locations awaiting destruction. Lugar, Richard. Arms Control Today. Mar. 2004. Arms Control Association.09 Apr. 2004 <http://http://www.armscontrol.org/act/2004_03/Lugar.asp>.

[26] See Matthew Bunn, John P. Holdren and Anthony Wier, "Securing Nuclear Warheads and Materials: Seven Steps for Immediate Action," Washington, DC: Nuclear Threat Initiative and Project on Managing the Atom, Harvard University, May, 2002.

III. Review of Programs

U.S. Ambassador to Russia Alexander Vershbow expresses pride in the progress of Cooperative Threat Reduction in Russia. In all, there have been at least 75 separate initiatives.[27] But the Ambassador reserves room for doubt:

> We have developed extraordinarily good cooperation under the various Nunn-Lugar programs over the past decade--in which we made a material contribution to strengthening the security of facilities and destroyed a lot of dangerous material. But at the same time, there still is a concern that there may not be 100 percent success through these programs.[28]

Many people think Cooperative Threat Reduction is funded and run exclusively by the Department of Defense. However, the Departments of Energy and State combined now receive more funding for Russian cooperation than the Defense Department does. While cooperation can be divided by departments, it can also be divided by functions; programs either target nuclear weapons, their delivery systems, fissile material, security at nuclear facilities, or efforts to prevent leakage of expertise from nuclear scientists. In general, DOD is most concerned with weapons and delivery systems, DOE has the widest scope, concentrating on fissile material, the facilities and scientists; and the State Department targets scientists outside closed cities. It would be incorrect to say that every U.S.-Russian nuclear cooperation program is aimed at the immediate concern over terrorism. Some initiatives are aimed at nuclear safety, emergency response and civilian research. The Department of Energy has the largest number of programs with over 15 funded since 1992.[29] Notable programs from all three Departments are discussed below:

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[27] For a complete listing of current programs and funding levels please see the Nuclear Threat Initiative website at www.nti.org.

[28] UPI: Peter Lavelle, Q&A: Ambassador Alexander Vershbow and Russia's Place in the World. Johnson's Russia List #8163, 12 April 2004, A CDI Project, www.cdi.org. Accessed 14 April 14, 2004.

Highly Enriched Uranium (HEU) Purchase Agreement. Developed in the State Department both the U.S. and Russia consider this program to be one of the most outstanding features of nuclear cooperation. Dubbed the "Megatons to Megawatts" deal, it is truly a swords to plowshares effort. The U.S. Enrichment Corporation (USEC) buys highly enriched uranium (enriched to 90 percent uranium 235) taken from Russian nuclear missiles. The HEU is then blended down to less than five percent low enriched uranium (LEU) for use in commercial nuclear power plants. The Department of Energy's Transparency Implementation Program (TIP) ensures that the material USEC receives is in fact from nuclear weapons. In 2003, Russia received $688 million from the U.S. for HEU-LEU purchases.[30]

Although more HEU is required than plutonium to make a bomb, a crude "gun type" HEU bomb is easier to construct than a plutonium bomb that requires precise implosion explosives. HEU would be the fissile material of choice for terrorists.

Russian Plutonium Disposition Program. Both the U.S. and Russia are committed to disposing of 34 metric tons of weapons grade plutonium according to the 2000 Plutonium Management and Disposition Agreement. Plutonium disposition is one of two major programs constrained by liability issues (see Section V). Russia has always viewed plutonium as a resource to be used in nuclear power plants. Plutonium is suitable

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[29] According to the US Embassy in Moscow, current National Nuclear Security Administration (NNSA) Programs in Russia are: 1) Nuclear Safety And Emergency Cooperation; 2) Highly Enriched Uranium (HEU) Transparency Implementation Program ; 3) Elimination Of Weapons-Grade Plutonium Production ; 4) Russian Transition Initiatives (RTI); 5) Initiatives For Proliferation Prevention (IPP); 6) Nuclear Cities Initiative (NCI); 7) Warhead and Fissile Material Transparency (WFMT) Program; 8) HEU Purchase Agreement Transparency; 9) Nuclear Warhead Safety and Security Exchange (WSSX) Agreement; 10) Plutonium Production Reactor Agreement (PPRA); 11) Russian Research Reactor Fuel Return (RRRFR); 12) International Nuclear Export Control Program (INECP); 13) Trilateral Initiative; 14) Material Protection, Control And Accounting (MPC&A); 15) Russian Plutonium Disposition Program.

[30] Russian Nuclear Agency Presented Its Annual Report for 2003. 1 Apr. 2004. Bellona. 7 Apr. 2004 <http://www.bellona.no>.

for breeder reactors, which create more plutonium and thereby represents a proliferation concern. The U.S. experimented with the idea of "immobilizing" or "vitrifying" plutonium in glass, rendering it unusable for weapons. Russia objected, saying immobilization could be reversed and plutonium that was thought to be rendered useless could be put back into weapons production. Now, the idea is to use excess plutonium in a "mixed oxide" or "MOX" fuel that would be suitable for commercial nuclear reactors. Environmental groups in the U.S. and Europe object to MOX fuel because they say it is inherently more dangerous, causes nuclear plants to age faster, and poses security concerns as the plutonium and the fuel must be transported.[31] Dr. James Clay Moltz at the Monterey Institute of International Studies testified before Congress in May 2003 that the U.S. should "reopen the vitrification option for plutonium disposition, which is safer, more realizable in the near term, and more cost effective."[32] Russia is not likely to agree to any solution that does not remunerate Russia for plutonium that many believed was produced only through great sacrifice.

Material Protection, Control and Accounting (MPC&A). Material protection, control and accounting, cameras, guards, sensors, and fences for Russian nuclear facilities are funded from this Department of Energy program. A "defense in depth strategy" expanded the program in 2001 with the "Second Line of Defense"

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[31] "Why Environmentalists say NIX to MOX Plutonium fuel," Nuclear Information & Resource Service, Southeast, www.nirs.org, accessed 03 April 2004.

[32] Testimony of Dr. James Clay Moltz, Director, Newly Independent States Nonproliferation Program Center for Nonproliferation Studies, Monterey Institute of International Studies, Before the Subcommittees on Europe and on International Terrorism, Nonproliferation and Human Rights of the Committee on International Relations of the U.S. House of Representatives, May 14, 2003.

program, which goes beyond the nuclear facilities themselves to the airports, seaports and border checkpoints around the world.

Nuclear Cities Initiative (NCI). NCI is designed to find commercial employment for nuclear scientists in Russia's ten nuclear cities. The Nuclear Cities Initiative is not designed to restore Russia's nuclear laboratories to their lofty Cold War status, but rather to transfer the skills nuclear scientists have developed from the military to the civilian realm. NCI is now challenged legally with unresolved liability problems and has always been challenged financially given the scope of the problem. NCI simply can not afford to offer a job in the commercial world to every current and former weapons scientist in Russia's ten nuclear cities. Access is also a major problem for NCI. Even Soviet citizens once needed a "visa" to gain access to the nuclear cities. The cities still limit access, especially to foreigners.

This DOE program is important. Pakistani nuclear scientist A.Q. Khan, the admitted trafficker of nuclear secrets, has demonstrated that nuclear expertise can be exported. The international community is not well served by the "A.Q. Khan nuclear Walmart" as the International Atomic Energy Agency's Mohamed ElBaridei phrased it.

Weapons scientists at the closed cities are getting older and retiring, which is positive, but there is also concern about finding careers for the next generation. In "Beyond Nunn-Lugar: Curbing the Next Wave of Weapons Proliferation Threats from Russia," a working group on U.S.-Russian nonproliferation cooperation stated as their number three recommendation: "The United States and European Union, and Russia need to cooperate much more extensively to increase the quality and number of student

exchanges."[33] The hope is that Russia's "best and brightest" can be lured away from the government's "military research industrial complex" and instead find civilian careers, which of course depends on a healthy Russian economy.

In the late 1990's, after a long day of negotiating, a senior MINATOM official said to a U.S. diplomat, "You destroyed us." The American began to protest, saying the Cold War could have been much worse, but the Russia repeated flatly: "No, you destroyed us." Looking at some of Russia's nuclear cities, where scientists once enjoyed many privileges, and seeing the empty ballrooms, tattered curtains and dilapidated laboratories, it is hard to disagree with that assessment for former Soviet scientists.

Legendary Nobel Prize winning physicists and human rights champion Andrei Sakharov lived and worked in Sarov, 400 kilometers East of Moscow. His cottage, modest by American standards but a step up from a Soviet apartment, is now a museum. In a sense, all of these cities run the risk of becoming unintended, crumbling museums to the Cold War. All ten cities have faced economic and social distress as their subsidies have disappeared. Residents in these cities not only have nostalgia for the old days, but also a fear of opening the cities to the outside world.[34] The petty crime, drugs and mafia operations that plague the rest of Russia are not as widespread in the nuclear cities. Opening them to the world, some residents fear, opens them to the worst aspects of modern life.

The reality of course is that these cities have little choice. The Russian government, acknowledging that it could not keep these cities afloat any longer with

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[33] Riisager, Thomas, and Henry D. Sokolski, eds. Beyond Nunn-Lugar: Curbing the Next Wave of Weapons Proliferation Threats from Russia. Carlisle, Pennsylvania: Strategic Studies Institute, 2002. 16-17.

[34] Visit by the author with Senator Pete Domenici and the U.S. Embassy in Moscow.

subsidies, passed the "Closed Territorial Entities" law in 1998, allowing the nuclear cities to retain their tax revenues, rather than pass them on to federal coffers. The money could, in turn, be invested in local projects that would convert defense workers into consumer manufacturers. Certainly the technical expertise exists in the nuclear cities to produce a wide range of products, given the high level of education. The roughly 550,000 people living there were the intellectual elite in Soviet days. Unfortunately, tax reform failed. Corruption, favoritism and inefficiency torpedoed the legislation and the far-sighted legislation was rescinded in 2001.[35]

The nuclear cities are listed below[36]:

Current Name	Soviet Name	Function	Population
Lesnoy	Sverdlovsk-45	*Warhead Production*	50,000
Novouralsk	Sverdlovsk-44	*Uranium Enrichment*	90,000
Ozersk	Chelyabinsk-65	*Plutonium Production*	88,000
Sarov	Arzamas-16	*Weapons Design*	85,000
Seversk	Tomsk-7	*Plutonium and Uranium*	118,000
Snezhinsk	Chelyabinsk-70	*Design*	50,000
Trekhgorony	Zlatoust-36	*Warhead Production*	70,000
Zarechnyy	Penza-19	*Warhead Production*	70,000
Zheleznogorsk	Krasnoyarsk-26	*Plutonium Production*	100,000
Zelenogorsk	Krasnoyarsk-45	*Uranium Enrichment*	67,000

Figure 1.

The Nuclear Cities Initiative also came under attack by journalist Kenneth Timmerman who takes a strictly business approach. He writes, "U.S. nuclear scientists are being asked to train their Russian counterparts in Western business techniques and management skills—clearly not their strong suit....Of the 400 Russian projects managed

[35] *Russia: The Nuclear Cities Initiative,* Monterey Center for Nonproliferation Studies, Elena Sokova, CNS Research Associate, 2002, www.nti.org.

[36] The numeric designation after each city was a ploy by the Soviets to confuse foreign intelligences services into thinking that Tomsk 7 for example, must be one of seven nuclear laboratories named Tomsk in Russia.

by the Department of Energy since 1994; none can be classified as long-term commercial successes."[37] One could argue that there still hasn't been enough time to make a sound judgment regarding "long-term" success.

Fissile Material Storage Facility (FMSF). The Fissile Material Storage Facility is better known as "Mayak." According to the U.S. Embassy, Mayak provides "centralized, safe, secure and ecologically sound long-term storage for Russia's fissile materials that have been removed from weapons." There have been questions about Russia's contribution towards construction of the facility and whether Mayak will ultimately be used for civilian fissile material, but the fact that the facility has been constructed is testament to what Nunn-Lugar funds can accomplish and provides the U.S. and Russia with a tremendous resource for storing fissile material.

Nuclear Weapons Storage Security Programs (NWSS). Nineteen sites will receive upgrades for automated accounting and inventory of nuclear weapons to be dismantled. Along with accounting systems, this DOD initiative will provide training for guards, physical security upgrades, and better equipment for handling nuclear weapons.

Nuclear Weapons Transportation Security Programs (NWTS). Transfer points at rail yards are now seen by CTR officials as a point of vulnerability. The security of weapons slated for destruction while enroute to interim or permanent storage sites is the focus of NWTS. Supercontainers have been funded through this program, as well as emergency response training in case of an accident involving the transportation of nuclear weapons.

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[37] *Russo-American Nuclear Cities,* By Kenneth R. Timmerman, American Spectator, 01488414, July 1999, Vol. 32, Issue 7.

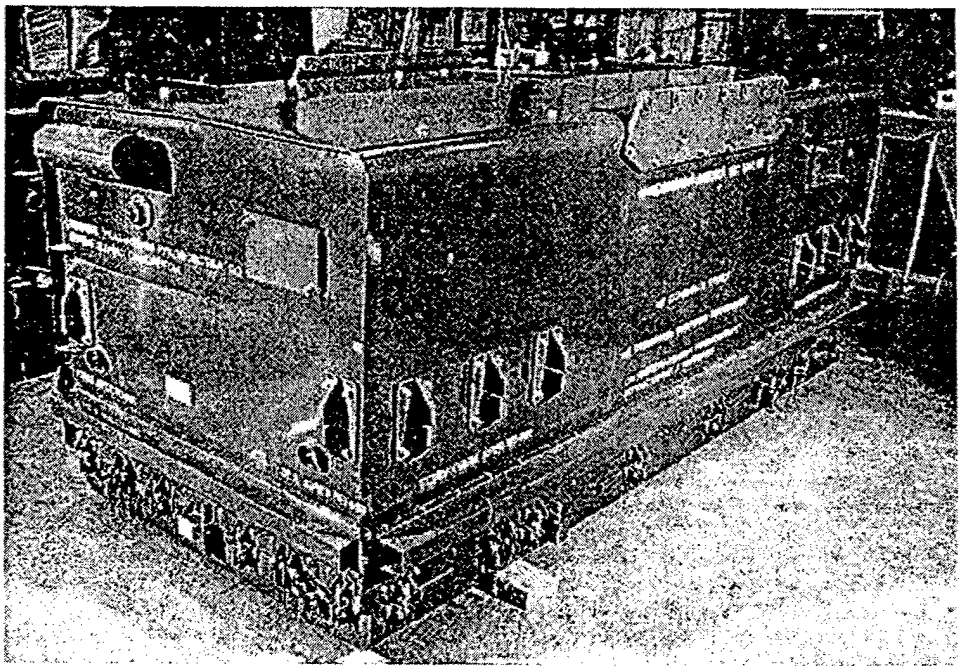

FIGURE 2: Nuclear Weapons Supercontainer. The Cooperative Threat Reduction program has provided Russia with 150 supercontainers providing protection from small arms and fire hazards during handling. Photo: U.S. Embassy Moscow.

International Science and Technology Center (ISTC). The ISTC describes itself as: "a clearinghouse for developing, approving, financing, and monitoring projects aimed at engaging weapons scientists, technicians, and engineers from the Commonwealth of Independent States (CIS) in peaceful, civilian science, and technology activities." ISTC receives funding from the Department of State, but is an intergovernmental organization created to generate self-sustaining commercial projects (see Appendix B). The ISTC serves as a model. According to State Department officials, it is being replicated in Iraq and Libya. Along with its nonproliferation goals, the ISTC works obliquely at transforming Russia into a civil society. ISTC's website reads: "Its larger goals include reinforcing the CIS transition to a market-based economy responsive to civilian needs, and supporting basic and applied research."

IV. The Bilateral Relationship and Russian Point of View

The U.S.-Russian bilateral relationship is a potentially critical factor in the long-term success of Cooperative Threat Reduction. If the U.S. and Russia are at odds politically, a strategic partnership that fosters Nunn-Lugar goals is unlikely to function smoothly. This section looks at the interaction between CTR and the diplomatic relationship.

At times, the Nunn-Lugar program has provided ballast to the bilateral relationship, particularly through the contentious periods of Kosovo, Iraq and NATO expansion. Vladimir Rybachenkov, Counselor at the Russian Embassy, says high level relations today are good, and he sees the G-8 commitment to Russian nonproliferation as "sustainable" through 2012 given the common interests of all involved.[38]

Cooperative Threat Reduction is a classic example of "two-track diplomacy:" which one researcher defined as: "A term referring to the use of unofficial channels to facilitate negotiations between governments, to promote international engagement without arousing hostility, or to build confidence among elites across international boundaries."[39] Diplomacy will only be successful if relations are running smoothly on *both* tracks.

Siegfried Hecker, who was director of the Los Alamos Laboratory from 1986 to 1997, points out why the diplomatic stakes are so high in the *Nonproliferation Review* article, "Thoughts on an Integrated Strategy for Nuclear Cooperation with Russia."[40] Hecker wryly noted, "Russia has nuclear weapons—lots of them and big ones."

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[38] Vladimir Rybachenkov, Counselor, Embassy of Russia, Author Interview, 30 March 2004.
[39] Schweitzer, Glenn E. Scientists, Engineers, and Track Two Diplomacy: A Half Century of US-Russian Interacademy Cooperation. Washington, DC: National Academies P, 2004. v.
[40] Hecker, Siegfried S. "Thoughts about an Integrated Strategy for Nuclear Cooperation with Russia." The Nonproliferation Review 2001: 1.

The article describes three potential U.S.-Russian diplomatic relationships: 1) Russia as an independent-minded ally something like France; 2) Russia as neither friend nor foe (status quo); and 3) Russia as a re-emerging adversary. Hecker analyzed many U.S. cooperative programs with Russia under the various relationship models and concluded that "increased nuclear cooperation with Russia will enhance U.S. national security."[41]

Under a "hierarchy of risks," from avoiding a nuclear exchange, to preventing theft or diversion of nuclear weapons and materials, to preventing aggressive nuclear exports, the outcome for the U.S. is *always* better if the relationship with Russia is that of an ally. Progress on the programs and issues that are most critical to U.S. security is much *less likely* as the relationship goes from ally to re-emerging adversary. The conclusion one could draw from Hecker's analysis is that if nonproliferation is the number one concern, and Russia is the number one source of unsecured nuclear material, and the political path of partnership with an independent-minded ally yields the fastest, most secure result in terms of securing WMD, then the U.S. must decide in favor of a closer political relationship with Russia.

Thomas Graham, Special Assistant to the President and Senior Director for Russian Affairs at the National Security Council, says none of Hecker's three models quite fit. Graham rules out the re-emerging threat characterization. Instead he says the relationship has improved steadily over the past three years and could be characterized as a "developing partnership."[42]

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[41] Ibid. 19.
[42] Thomas Graham, Special Assistant to the President, National Security Council, Washington, DC, Telephone interview. 23 Mar. 2004.

Graham said the relationship is not that of a NATO ally with the attendant legal framework, but the U.S.-Russia bilateral relationship is "slowly moving in that direction."

DOE's Steven Aoki echoes that feeling and says it is important to "orient people to genuine cooperation between two countries who respect each other."[43] Not that the U.S. and Russia are "equal" in the formal sense, but they are two countries with shared interests, both of whom are spending resources to combat the threat of proliferation to terrorists. Treating Russia as a state that is "helpless" is not useful and does not reflect Russia's growing self-confidence.

The bottom line is that future initiatives will be dependent on the health of the U.S.-Russian relationship. Current programs, especially those that are covered by formal government to government treaties will proceed smoothly. There are never access problems, for example, with American visits under the START agreement. Reciprocity has also been an issue in the past, however, it does not seem to be a Russian complaint at the moment. In fact, the Russians do not always take advantage of the access to American nuclear facilities that they are *guaranteed* under the HEU purchase agreement.

Russia's participation in Iran's nuclear power plant project at Bushehr is also a factor in the bilateral relationship and complicates prospects for increased nuclear cooperation, according to Susan Koch at the White House.[44] Koch says there has been progress on Iran, but Russia does not get a "clean bill of health." Existing programs are not affected much by the Iran irritant, but new initiatives are constrained.

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[43] Steven Aoki, Senior Policy Advisor for International Affairs, Department of Energy, Author Interview, Washington, DC, 30 March 2004.

[44] Susan Koch, National Security Council, Director Proliferation Strategy, Counterproliferation, and Homeland Defense, Author Interview 31 March 2004 at the White House.

New initiatives are also constrained by the lack of a formal government to government agreement between the U.S. and Russia to pursue cooperative programs under Section 123 of the Peaceful Uses of Atomic Energy Act. A "123 Agreement" would allow Russia to store U.S.-origin spent fuel, a possible $20 billion market for Russia. Much of that spent fuel is now in Europe and Asia and a repository is badly needed. Italy tried building a national spent fuel repository but local opposition killed the plan. To ship U.S.-origin spent fuel to Russia would require U.S. approval. Igor Khripunov says Russia could build a well-equipped, well-run repository in Siberia (Zheleznogorsk). The U.S. and Russia could make this plan a reality, but an agreement is not likely unless an understanding on Iran is reached first.[45]

The Russian Point of View. Not surprisingly, Russians and Americans view the world differently. After listening to a litany of nuclear waste "crises" outlined by a visiting American Senator, Russian Admiral Kuriyedov said, "We don't have problems, we have tasks."[46] The task is often made more difficult by the divergent world views. From an American point of view, Russians are difficult to deal with. They impose taxes on assistance, routinely deny access, renegotiate "done deals" and view American projects with suspicion, if not outright hostility. Sandia laboratory published a guide to negotiating with Russians that tries to prepare American scientists for first-time encounters: "If Russians make a point or explain a principle, they will take silence on the U.S. side to mean agreement. If you don't agree, make that clear. They do not apply this principle to themselves." (See Appendix A: Negotiating with Russians). The Russian

[45] Igor Khripunov, Associate Director Center for International Trade and Security, Telephone Interview 15 April 2004.
[46] Russian Admiral Kuriyedov to Senator Domenici during the Senator's visit to Moscow, 1998.

motto for Nunn-Lugar could well be, "We're not going to just roll over and take your money."

Russians are not so enigmatic though if the interlocutor speaks Russian and is familiar with the country. Given the complexity of the Nunn-Lugar program, those working on the program need to understand conditions in Russia and speak Russian. There is still quite a divide between the U.S. and Russian cultures and value systems, and there is a Russian point of view. Russians are initially skeptical, having seen many American "nuclear tourists" come and go without providing promised assistance.[47] Russians see American assistance as usually having strings attached, that may or may not be explicit in initial meetings. For both sides, the most productive relationships are those built on years of reciprocal visits. The Department of Energy's ongoing lab to lab contacts are probably the best example of the benefits of long-term contacts. Russian and American scientists who have worked together for a long time share family pictures, correspond regularly, and make progress without a lot of formalities.

The Russian view of Nunn-Lugar also reflects the *inherent* difficulty in bilateral and multilateral cooperation. "It is an open secret that the international nuclear nonproliferation regime is now in crisis." That gloomy assessment by Russian journalist Vladimir Orlov speaks to the Nuclear Nonproliferation Treaty and the global nonproliferation effort. But there are also strong supporters of U.S. cooperation in Russia. Dr. Victor Mizin, former Diplomat in Residence at the Monterey Institute, says U.S.-Russian nuclear cooperation is well regarded by most Russians:

> In Russia, the Nunn-Lugar programs are well-known and well regarded, having assisted in substantially diminishing proliferation dangers from the former Soviet

[47] Leppingwell, John W., and Nikolai Sokov. "Strategic Offensive Arms Limitations and Weapons Protection, Control and Accounting." The Nonproliferation Review (2000) p. 67.

> states. Another important factor of this program is that it has indirectly bolstered Russia's much sought image of a strategic global player and respected partner of the West.... There is little if no opposition from the Russian military and Russian nuclear industry community toward the Nunn-Lugar programs. Russian leaders appreciate the cooperation that the United States has extended in the areas of nuclear weapons storage, warhead transportation, and delivery vehicle destruction.[48]

Mizin admits that there were some critics, principally ultra nationalists in the Duma, the Russian parliament, who said that CTR was intended to "disarm Russia or take its nuclear arsenal under control."[49] Many observers believe that the Duma is now more pliant and willing to go along with the Putin administration's lead, especially on security issues.

The Russian media can also be hard on nonproliferation efforts. *Moscow Times* columnist Pavel Fefgenhauer wrote that "nothing has materialized of the $20 billion in 10 years that the G-7 countries offered to spend on making safe WMD in the framework of the Global Partnership." Russian officials also state that "large chunks of the aid that is being provided is squandered on paying lavish fees to worthless Western consultants."[50]

Nonproliferation expert Henry Sokolski says it is important to focus on what the Russians want and need. "The U.S. should focus on those Russian wishes where the U.S. has the most leverage and ability to deliver and sound nonproliferation programs are most likely to result."[51]

Submarine dismantlement of all classes is clearly one such Russian wish. In 2003, Russia spent close to $72 million in Russian federal funds on submarine

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[48] RANSAC: Congressional Strategic Stability and Security Seminar, 17 May, 2002, Remarks by Victor Mizin, Diplomat in Residence, Monterey.
[49] Ibid.
[50] Moscow Times: "Zero Consensus on WMD," September 25, 2003
[51] Henry Sokolski, Former Director, National Policy Education from 17 May 2002 Russian American Nuclear Security Advisory Council Conference.

dismantlement compared to $21 million provided by foreign assistance.[52] The U.S. focuses assistance on strategic, rather than tactical submarines. Russia is also concerned with chemical weapons dismantlement, joint nuclear energy research, and environmental remediation.

More parochially, the concern in Russia, especially where nuclear reactors are being shut down, is worker anxiety over jobs. People whose professional lives have revolved around the reactor are understandably concerned that if their old job ends on Day "X," they have a job waiting on Day X plus one. U.S. assistance is not oriented towards resolving individual employment issues. Reactor plants often provide subsidized cafeterias and day care, meaning the loss of a job entails loss of significant benefits.

Nonproliferation expert Elena Sokova says too often U.S. assistance programs are surrounded by rumors that end up hurting the program in the long run.[53] For example, the U.S. is working to shut down the plutonium reactor at Zheleznogorsk and replace it with a fossil fuel plant. The rumor in town is that the city will "go dark" and people will be left without heat or power during a gap between the shutdown of the plutonium reactor and start up of the fossil fuel plant. Sokova says the U.S. should provide funding for public awareness because public support will actually *expedite* projects like Zheleznogorsk, as people learn that their antiquated and dangerous reactor is to be replaced by a safer fossil fuel plant. The Zheleznogorsk plant was suspended for six months while lawyers wrangled over ownership issues. Sokova says townspeople would have pressured officials to make a deal had they known the issues.

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[52] Russian Nuclear Agency Presented Its Annual Report for 2003. 1 Apr. 2004. Bellona. 7 Apr. 2004 <http://www.bellona.no>.
[53] Telephone Interview, 24 March 2004.

Russian Threat Perception. Some Americans believe Russians simply do not see the threat the way the U.S. does. Russian Defense Minister Sergey Ivanov made it clear that he believes nuclear materials in Russia are secure: "I can with confidence talk about weaponized nuclear fuels...Weapons-grade nuclear fuels, that's uranium and plutonium. And I say that with full responsibility, I'm [certain that] no leakage of such materials is possible."[54] Evidence suggests that the average Russian, however, is aware of the stakes and is not so convinced that "it could not happen here." According to a poll taken by the PIR Center in Moscow in 1999, 83 percent of those questioned believed it was indeed possible for nuclear theft to occur at Russian nuclear sites. Seven percent were undecided and only ten percent thought nuclear theft impossible. If the average Russian on the street recognizes the threat, there is no doubt that top Russian officials also appreciate the danger.

The survey also suggests that there is latent public support for nonproliferation programs that strengthen Russian nuclear safety and security. Given that, the U.S. should be doing more in terms of public diplomacy to promote the benefits of Nunn-Lugar to maintain public support. A former U.S. Embassy official said Russian nuclear workers are often misrepresented in the U.S. as not caring about security. The official said Russians working in the nuclear complex *do* understand the gravity of the threat and are very cognizant of the steps needed to safeguard nuclear material. What they do not have are the resources to remedy the situation.

While many Russian military and civilian officials, including President Putin, see well-established cooperative nonproliferation programs as important, there is a lingering

[54] Center for Defense Information Reception for Russian Defense Minister Sergey Ivanov at the Washington Club, 6 April 2004.

bitterness over the perceived failure of the U.S. to live up to its promises following the Cold War. According to Sokova, Russians believe they made a lot of concessions in the early 1990's, with the expectation of significant financial aid. She adds that there were some very effective assistance programs for Russia, but the overall extent of aid, over $6 billion in one decade, could hardly be expected to translate into making a real difference for the average Russian. By comparison, in today's dollars the Marshall Plan commitment to Europe was over $100 billion.[55] Had there been a Marshall Plan for Russia, Sokova believes Russia would be a different country today. Nikolai Sokov, former Russian arms control negotiator and now a researcher at the Monterey Institute, agrees. He says current problems date back to the "false expectations" created in the first Bush Administration. Russians learned that "conflict with the U.S. is costly; but cooperation doesn't yield much in terms of tangible gains."[56] Others put the blame on Russia itself for not having been more "visionary" in the early 1990's, or more professional in its handling of foreign assistance. One Russian émigré said more money from the international community would have simply meant more misappropriation of funds.

[55] Radio Free Europe website, <www.rferl.org>. How the Marshall Plan Took Western Europe from Ruins to Union, Joel Blocker, 26 May, 1997.
[56] Nikolai Sokov, Senior Researcher, Monterey Institute for International Studies, Telephone Interview, 12 April 12, 2004.

V. Domestic Politics and Liability

For years, Nunn-Lugar programs have operated "under the radar horizon." They do not receive a lot of media attention or public scrutiny. A joint task force concluded that "U.S. policy toward Russia is managed and maintained as an elite, mostly inside the beltway issue."[57] U.S.-Russian nuclear cooperation is followed closely by some nongovernmental organizations such as the Nuclear Threat Initiative, Russian-American Nuclear Advisory Council, Carnegie Endowment for International Peace, Monterey Institute; and several universities, notably Harvard, Princeton and the University of Georgia. They all provide excellent information and public outreach and education to raise the visibility of Cooperative Threat Reduction in Russia. However, for the most part, Americans are only vaguely aware of the extent of U.S.-Russian nuclear cooperation. Public opinion does not drive Nunn-Lugar programs, but ideology and domestic politics do play a role.

The Cold War has a certain half life according to the National Research Council. The Council cites the "legacy of a Cold War mentality" as one of the impediments to greater cooperation between the U.S. and Russia.[58] "The Pentagon never quite warmed up to Russia," as one State Department official put it. Susan Koch, Director of Proliferation Strategy at the White House, doesn't buy that. She says today we are "far from the Cold War mentality." Still, there is resistance to the Nunn-Lugar programs, particularly in the House of Representatives. House Armed Services Committee Staffer Eric Sterner says CTR debates tend to divide along party lines (despite the President's

[57] Mendelson, Sarah, ed. Domestic Politics and America's Russia Policy. New York: Century Foundation and the Stanley Foundation, 2002. p. 6.
[58] Overcoming Impediments to US-Russian Cooperation, p. 70.

call for increased support for CTR) and many right-wing Republicans remain wary of cooperation with Russia. Sterner calls it a "religious" debate and says the two sides simply see the world differently and approach CTR from a different set of assumptions. Sterner asks bluntly if the U.S. is "one iota safer because of CTR." He also questions whether CTR should be under the Defense Department since it doesn't relate to the Department's core mission.

Jim Reid, Director of the Office of Cooperative Threat Reduction Policy, says that debate has come and gone.[59] While CTR does not relate to readiness or warfighting, Reid says there is a consensus in the Defense Department, even at the Combatant Commander level, that CTR programs with Russia benefit U.S. national security and Defense is the best department in the U.S. Government to handle dismantlement. Sterner said there was discussion in Congress about taking DOD's $450 million and giving it to the Department of State, saying that would remove the "political opposition" to CTR. A cynic might see that as a way to further slow the effort, since State is not equipped for that type of large contracting mission. Some say the main obstacle to resolving the liability issue is Under Secretary Bolton at the State Department, however, the liability impasse dates back to the Clinton White House.

Liability. Liability, who pays in case of an accident, is the current political issue since it is holding up progress on two key Nunn-Lugar programs, the Nuclear Cities Initiative and Plutonium Disposition. Senator Domenici, "the Godfather of the U.S.-Russia plutonium disposition program" can not understand why an issue this "trivial" is being allowed to delay progress on vital nuclear cooperation. Early CTR agreements had

[59] Jim Reid, Director, Cooperative Threat Reduction Policy, Telephone Interview, 2 April 2004.

blanket liability coverage for Americans working in Russia. Any accident, *even an accident caused by a deliberate act of sabotage on the part of an American*, would be paid for by Russia.

R. Douglas Brubaker of the Fridtjof Nansen Institute of Norway, and Leonard Spector of the Monterey Institute point out that if Russia had money to pay for a catastrophic accident, there would be no need for assistance. Brubaker and Spector proposed that the U.S. and Russia develop a "cooperative insurance" arrangement that would share liability.[60]

Newer initiatives, like Nuclear Cities and Plutonium Disposition do not contain the sweeping liability protection contained in the original CTR agreement, but so far the U.S. insists upon full protection for all programs. Is the principle the U.S. is fighting for more important than the cooperative nuclear programs? Susan Koch says the principle is very important, that the U.S. is spending significant sums of money in Russia and deserves special consideration. She says what constitutes "sabotage" and what constitutes "an accident" is fairly subjective and American firms could be wrongly accused and held accountable.[61]

But other observers are not convinced. The Carnegie Endowment's Rose Gottemoeller calls liability a "red herring" that is being used in the "guerrilla war" waged by opponents of Nunn-Lugar.[62] In the end, however, she believes the issue will resolve itself because of the commonality of interests in keeping the programs alive in both the United States and Russia. Her colleague at Carnegie, Jon Wolfsthal, also a

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[60] Brubaker, R. Douglas, and Leonard S. Spector. "Liability and Western Nonproliferation Assistance to Russia: Time for a Fresh Look." The Nonproliferation Review 10 (2003): 1-37.
[61] Author Interview, 31 March 2004.
[62] Author Interview, 1 April 2004.

nonproliferation expert, says, "If you're a lawyer at the State Department [liability and taxes] may be very important issues. But if you are concerned about the geostrategic survival of the human species, they are miniscule in their relevance."[63]

One official questioned what the U.S. would gain by holding out any longer on the issue. Most experts think the likelihood of the clause being needed at all is small, since no one can imagine why a U.S. worker *would* sabotage a project. The Russian Duma will have to renew the 1992 CTR accord and approve language in any new agreement. The Russians view the original language as having reflected Russia's weaker state in the early 1990's. Congressional sources, who suspect the State Department may be deliberately stalling a solution to the liability question, worry about undercutting a legitimate negotiating position. Senator Domenici has been very vocal about his frustration with the impasse and sources say he may well take his case directly to Secretary of State Powell. Domenici told National Nuclear Security Administration Administrator Linton Brooks that he is "very, very concerned" with the lack of progress and said "maybe there ought to be some bigger people at the negotiating table."[64]

Nuclear cooperation programs have shown a fairly high degree of resiliency and have weathered major diplomatic storms. For major nuclear cooperation programs to be hung up over liability clauses suggests, however, that there may be some deeper troubles with the relationship. One State Department expert with long experience in nuclear affairs says a general rule of thumb with the Russians is that it takes a month of negotiating for a page of text in a treaty or other bilateral agreement. Some disagreements are now going on two years. The official further stated that Under

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[63]Peterson, Scott . "US and Russia nukes: Still on Cold War, Hair-Trigger Alert." Christian Science Monitor 6 May 2004. 8 May 2004, <http://scmonitor.com>.
[64] Nuclear Weapons and Material Monitor, March 29, 2004, Washington, DC, p. 16.

Secretary of State for Arms Control and International Security John R. Bolton was holding the outstanding agreements "hostage" because "he doesn't much like the Russians, the IAEA, or international organizations."

The liability agreement could also be held up over continuing bad feelings on the U.S. side for Russian assistance with Iran's Bushehr nuclear power plant. (The Russians from time to time bring up the fact that some of Iran's nuclear experts were educated in the U.S. at MIT in the 1970's.[65]) The official went on to say that even if Secretary of State Colin Powell would like to do more, Bolton's power, by virtue of his close association with Vice President Cheney, precludes progress on liability and nuclear cooperation in general.

[65]"Changing Dimensions of Nuclear Proliferation: Challenge and Response," Address by Lawrence Scheinman, Monterey Institute of International Studies at Watson Institute, Brown University, Providence, RI, 08 April 2004.

VI. High Level Engagement

When does a President use the power of his office to advance an issue? In general, the bureaucracy should involve the President solely when it is incapable of producing results through the interagency process. So far, policymakers in Washington have been unable to break the liability impasse and some say it is time for the President to step in. As Matthew Bunn of Harvard University says, "Presidential engagement is central to Nunn-Lugar success."[66]

There are arguments for and against Presidential involvement in Nunn-Lugar programs, but there is no doubt that the President could force the issue, accelerate the pace and resolve the liability problem. Jon Wolfsthal of the Carnegie Endowment for International Peace believes the President should "also make the personal commitment in prestige and time" to work directly with European countries with a vested interest in nonproliferation to ensure high level European participation.[67]

The impact of high level meetings on nuclear cooperation is evident when one reviews the record. Summits place a premium on "deliverables" and can remove bureaucratic obstacles quickly. Plutonium disposition is a complicated issue and has now hit liability snags and yet high level meetings advanced the process fairly quickly early on. The Gore-Kiriyenko meeting of July 1998 resulted in the "U.S.-Russian Agreement on Management of Used Plutonium." On September 2, 1998, at the 7th Clinton-Yeltsin summit, a "Joint Statement on Plutonium Disposition" was signed, paving the way for a formal agreement to reduce stocks of weapons grade plutonium. Presidents Putin and

[66] Author Interview, 26 Mar. 2004.
[67] Russia Weekly, "Act Now to Save G-8 Summit, Center for Defense Information, 22 May 2003. www.cdi.org accessed 24 April 2004.

Clinton declared that an agreement had been reached on June 4, 2000 and the "U.S.-Russia Plutonium Disposition Agreement" was signed by U.S. Vice President Gore and Prime Minister Mikhail Kasyanov on September1, 2000.[68] High level involvement clearly moved the plutonium agreement forward. Without that high level involvement, plutonium is now one of the programs stalled.

President Putin does meet with the Russian bureaucracy on nonproliferation issues. At the end of December 2003, President Putin hosted a meeting on nonproliferation in which he said export controls had to be structured and coherent. Putin also appointed an Ambassador at Large, Anatoly Antonov, to oversee Russia's nonproliferation efforts and international cooperation. While Antonov's position as Ambassador may not carry much weight with the Russian Defense Ministry or the Agency for Atomic Energy, he is able to look at the big picture and make recommendations that could be persuasive in the Duma. Antonov told an international nonproliferation gathering in September 2003 that "the results of the first year of global partnership leave one with a mixed impression. Cooperation within the G-8 goes on, but no radical changes have occurred."[69] Antonov has no exact counterpart in the U.S., as Susan Koch at the NSC has homeland security responsibilities and handles global nonproliferation issues.

Nuclear Czar. The lack of high-level U.S. attention is a failing of the current strategy according to the "Project on Managing the Atom" at Harvard. The Harvard project recommends appointment of a "senior, full-time official, with direct access to the

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[68] NTI. Russia: Plutonium Disposition Overview, Center for Nonproliferation Studies at the Monterey Institute of International Studies. 13 Mar. 2004 <http://www.nti.org>.
[69] "Russia Doesn't Think its Global Partnership with the West is Effective Enough." RIA Novosti 19 Sept. 2003.

President, to lead efforts to secure nuclear weapons, materials, and expertise."[70] Matthew Bunn, a long-time champion of U.S.-Russian nuclear cooperation at Harvard, argues that a "Nuclear Czar" could coordinate the various programs run by the Departments of Defense, State and Energy. Bunn says Presidents Bush and Putin have "excellent personal relations" but have not used those relations to advance these programs. Bunn believes Bush and Putin could sweep aside impediments to progress, like access and liability. They could also lean on officials like the former MINATOM official who told his American counterpart, "My job is to slow down your programs." Bunn admits that a Bush-Putin summit on nonproliferation would take "a bit of political courage," but if President Bush said that these programs were essential to good relations, the result could be positive and immediate. The U.S. for its part, could offer more access to some of its sensitive sites. The result would be more ongoing cooperation rather than a system of "pay per view" with access being a one time shot affair in exchange for movement on a discrete part of the nonproliferation package.

There are several counterarguments to the charge of a lack of presidential involvement. First, DOD officials say the President is absolutely involved in the issue as evidenced by his signing of a waiver to allow chemical weapons destruction to continue at Shchuch'ye, Russia within days of Congressional restrictions going into effect. Congress stipulated that Russia must meet six criteria to allow U.S. assistance to proceed.[71] The President engaged quickly and signed a waiver to the Congressional restrictions to ensure that the work continued as scheduled.

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[70] Bunn, Matthew, John Holdren, and Anthony Wier. Controlling Nuclear Warheads and Materials: A Report Card and Action Plan. Cambridge, Massachusetts: Harvard University, 2003. 93-94.

[71] Lugar, Richard. Arms Control Today. Mar. 2004. Arms Control Association 09 Apr. 2004 The six conditions are: 1. Russia has allocated at least $25 million annually for chemical weapons destruction;

The other argument is that the President should not be involved in issues like liability, taxation, and visas because those issues are too "in the weeds" for a sitting President. Susan Koch at the NSC says there has been high level attention given, but Presidential attention is difficult for individual projects.[72] The President's May 22, 2003 "Statement of Administration Policy" was explicit in its request that Congress *not* attach strings to Nunn-Lugar assistance and *not* limit assistance to Russia.[73]

NGO's including the Nuclear Threat Initiative (NTI) and the Russian-American Nuclear Security Advisory Council (RANSAC) also support a "Nuclear Czar," although they do not use the term. RANSAC officials call for "someone with broad convening authority and access to the President." NTI leaders also support the concept of a senior official saying the President's Science Advisor, an official confirmed by the Senate, serves as a useful model. In fact, there are many candidates for "lead official" already in power, including the Science Advisor. The Vice President could re-create something like the "Gore-Chernomyrdin Commission" to institutionalize regular high level meetings. The Secretary of Energy has traveled to Moscow and worked on specific Nunn-Lugar issues with high level Russian officials. The Secretary of State also has the authority to

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2. Russia has enacted a law that provides for elimination of all nerve agent at a single site [Shchuch'ye]; 3. Russia has agreed to destroy or convert its nerve agent production facilities; 4. There is an international commitment to fund and build the necessary infrastructure for a chemical weapons destruction facility; 5. Russia has provided full and accurate information on the size of its chemical weapons stockpile; and 6. Russia has developed a practical plan for nerve agent production. <http://http://www.armscontrol.org/act/2004_03/Lugar.asp>.

[72] Author Interview, 31 March 2004.

[73] From the Statement: "The Administration appreciates full funding of the CTR budget request, but is very concerned about requirements imposed by the Committee that will hinder DoD's and DoE's ability to implement more rigorously and effectively Cooperative Threat Reduction (CTR) and Nuclear Nonproliferation activities. Furthermore, H.R. 1588 would limit the President's flexibility to apply CTR resources to the most pressing non-proliferation challenges in support of the Global War on Terrorism and would not clarify that DoE has authority to carry-out such activities outside states of the former Soviet Union." Executive Office of the President, Office of Management and Budget, May 22, 2003 (House) H.R. 1588 National Defense Authorization Act, for Fiscal Year 2004.

take a lead role, and the Secretary of Homeland Security could arguably take on a wider nonproliferation responsibilities.

A salient finding of the 1996 "Threat Findings of the Nunn-Lugar-Domenici Act" is that "the United States lacks effective policy coordination regarding the threat posed by the proliferation of WMD." With the entry of the G-8 into nonproliferation efforts, the need for coordination is even greater. The General Accounting Office, which reviews the annual Defense Department CTR report noted in the review of CTR plans for FY 2004 that DOD lacks the strategic vision that a "Czar" could bring.[74]

Senator Domenici argues that the GAO and Congress fail to appreciate the difficulty of doing business in Russia and micromanage CTR projects. From that standpoint, even a "Nuclear Czar" in the U.S. would not necessarily accelerate Nunn-Lugar, since some of the resistance resides in Russia. Finally, DOD officials acknowledge that right now Cooperative Threat Reduction is "somewhere around priority number 27 for the Secretary of Defense."[75] DOD officials say senior government officials in and out of the military are "consumed" with Iraq and Afghanistan. At least one highly skilled official who had been working on securing Russian nuclear warheads was reassigned for duty to Iraq, where he felt he was not contributing as significantly to U.S. national security as he was in Russia.

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[74] GAO report number GAO-03-1008R, entitled 'FY 2004 Annual Report on the Cooperative Threat Reduction Program, July 18, 2003. "We found that the report lacked a discussion of key strategic planning elements that could help congressional decision makers in their annual CTR budget deliberations. Specifically, the report did not include annual performance goals linked to long-term goals, information on external factors that could affect the achievement of these goals, and plans for revising program goals, all of which are already developed by CTR program managers."

[75] In fact, a recent Pentagon list of priorities for 2004 put Counter Proliferation of WMD as the fifth priority. The top four were: 1) Successfully pursue the global war on terrorism. 2) Strengthen combined/joint warfighting capabilities. 3) Transform the joint force, and 4) Optimize intelligence.

VII. Pace, Duration, Sustainability

Americans are said to have short attention spans. Cooperative Threat Reduction programs have been funded for well over a decade and are somewhat institutionalized. However, there are numerous political, budgetary, technical, and bilateral pressures that call into question America's ability to see the effort through and "win the race," as former Senator Nunn puts it:

> My fundamental conclusion is that the world is in a race between cooperation and catastrophe. To win this race, we have to achieve cooperation on a scale we've never seen or attempted before – not because cooperation will give us a warm, fuzzy feeling of community, but because every other method will fail.[76]

While the pace of progress is cited by most experts as the most serious concern, there are also concerns about the long term sustainability of U.S.-Russian nuclear cooperation. By most accounts, less than half of Russia's nuclear materials has been secured by Nunn-Lugar assistance. An October 2003 study stated that "only 41 percent of Russia's nuclear materials have received U.S. funded rapid security upgrades."[77] One nuclear facility runs its fences, alarms and security cameras on a diesel generator because the city's power plant is unreliable.

The question of pace is made more urgent by increased concerns over international terrorism. The U.S. National Academies and the Russian Academy of Sciences produced a joint statement on "Preventing the Proliferation of Nuclear Weapons and Nuclear Materials" urging an acceleration of nuclear cooperation between the U.S.,

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[76] Sam Nunn, "The Race Between Cooperation and Catastrophe," Speech to the Inter-Parliamentary Conference, Strasbourg, France, 20 November 2003.

[77] Nuclear Threat Initiative Press Release, Dangerous Gap Between Pace of Work and Urgency of Nuclear Threat; Progress Has Been Made, But Current Programs Not Moving as Fast as They Can or Must, New Analysis Finds, 22 October 2003.

Russia, and the rest of the international community.[78] Laura Holgate, Vice President of the Nuclear Threat Initiative, believes that the rate of highly enriched uranium from nuclear missiles now blended to low enriched uranium for burning in commercial nuclear reactors could be doubled; and that the transport, accounting and securing of tactical nuclear weapons should be accelerated. She also believes the scope of nuclear cooperation should expand to include Russian forward deployed missiles, which have so far been "off the table."[79]

The U.S. now relies on counterproliferation, nonproliferation, and emergency response as three pillars in the fight against nuclear terrorism. Under emergency response, public education should become a priority as a radiological dispersion device, while perhaps not literally a weapon of mass destruction, would be a weapon of mass disruption and panic, potentially causing more chaos than the weapon itself.

Nonproliferation expert Rose Gottemoeller predicts a radiological dispersion device attack in the U.S. within the next five years. She says that possibility creates a need for more public awareness and education concerning the potential extent of damage from a radiological dispersion device and an acceleration of the programs designed to prevent the use of such a weapon.[80] American Ambassador to Russia Alexander

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[78]Joint Statement by the Presidents of the US National Academies and the Russian Academy of Sciences, "Preventing the Proliferation of Nuclear Weapons and Nuclear Materials," 2004: "With clear indications that terrorist organizations are seeking nuclear and radiological weapons, cooperative efforts to deny them this option must be accelerated. These efforts should include plans for the ultimate disposition of the plutonium and highly enriched uranium made surplus by the downsizing of the US and Russian arsenals.... The world has not yet given adequate attention to the dangers of misuse of radioactive sources, spent nuclear fuel, and radioactive waste to make radiological devices. New cooperative activities between the two governments are needed to address these issues – in the United States, in Russia, and throughout the world." http://www.nationalacademies.org/Accessed 18 April 18, 2004.

[79] Laura Holgate, Vice President, Nuclear Threat Initiative, Author Interview, Washington, DC., 29 March 2004.

[80] Rose Gottemoeller, Senior Associate, Carnegie Endowment for International Peace, Author Interview, Washington, DC, 1 April 2004.

Vershbow addressed both the "dirty bomb" and "loose nuke" issue in a question and answer session in April saying:

> the main thing we have to think about is such materials falling into the hands of terrorists, if only for a dirty bomb. It is a tall order to develop a nuclear weapon, though that is certainly a genuine concern, but radiological dispersal devices, as dirty bombs are known as in the trade, are something we all have to worry about.[81]

Vershbow did not address a question in that interview about "suitcase-sized nuclear weapons" another potential nuclear concern that emanates from Russia.

Terrorism experts say terrorists are more motivated today. DOE officials say there is a disturbing trend of more instances of trafficking of small amounts of HEU and plutonium.[82] The quantities are too small to be used in a weapon, but they are seeing "the real stuff" as opposed to the attempted trafficking of radioactive isotopes with no weapons utility, or "red mercury," usually innocuous material offered on the black market to dupe would-be terrorists. The NIS Export Control Observer notes 40 reported instances of nuclear and radioactive trafficking in 2003, thankfully none posing a proliferation threat (see Appendix B for sample smuggling history).[83]

Suspected Chechen terrorists, who held scores of people hostage in 2002 at a Moscow theater, chose Moscow's Kurchatov Institute, home to fissile material, as an alternate target.[84] Experts doubt whether the nuclear scientific institute could have

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[81] UPI: Peter Lavelle, Q&A: Ambassador Alexander Vershbow and Russia's Place in the World. Johnson's Russia List #8163, 12 April 2004, A CDI Project, www.cdi.org. Accessed 14 April 14, 2004.
[82] Author Interview, Washington, DC, 30 March 2004.
[83] NIS Export Control Observer, Center for Nonproliferation Studies, Monterey Institute of International Studies, December 2003/January 2004, 18.
[84] Vladimir Bogdanov,"Propusk K Beogolovkam Nashli U Terrorista (A Pass To Warheads Found on a Terrorist)," *Rossiiskaya Gazeta,* November 1, 2002.

withstood an attack by 40 heavily armed terrorists, although the *Moscow Times* reported the terrorists eventually dismissed Kurchatov because "security was too tight."[85]

Funding. Congressional sources say funding is not the only metric for measuring a program's priority in the federal government, but it is *a* metric. The second major finding of the Baker Cutler report was that CTR has achieved "impressive results," but "their limited mandate and funding fall short of what is required to address adequately the threat."[86] That report suggested overall funding of $30 billion. Funding is not the sole answer because money is left unspent in the pipeline. While the Baker-Cutler report calls for a tripling in funding, some experts contend the programs could not absorb more funding. According to a DOD official, securing a Russian warhead costs about $25,000 per year. The official asked, "Where can you find a better deal for the U.S. taxpayer?" A senior DOE official said there is always a way to spend more money if money becomes available.

Russian-American Nuclear Security Advisory Council Executive Director, Kenneth Luongo, believes DOE's 2005 budget is not adequate: "This is a status quo budget. It funds essential security programs but it is not aggressive in attacking the real and mounting global nuclear threat."[87] Another creative proposal for funding nonproliferation efforts in Russia is a bipartisan "debt for nonproliferation" bill introduced by Republican Representative John McHugh (NY) and Democratic Congresswoman Ellen Tausher (CA). The bill would restructure Russian debt

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[85] Abdullaev, Nabi. "Picture Emerges of How They Did It." Moscow Times 6 Nov. 2002.
[86] A Report Card on the Department of Energy's Nonproliferation Programs with Russia, Howard Baker, Lloyd Cutler, Co-Chairs, Russia Task Force, The Secretary of Energy Advisory Board, United States Department of Energy, 10 January 2001, Executive Summary iii.
[87] RANSAC Press Release: Analysis of DOE Nonproliferation Budget: Status Quo Response to Increasing Nuclear Dangers, 4 February 2004. www.RANSAC.org accessed 21 April 2004.

conditioned upon Russia's cooperation in securing nuclear materials, much like debt for environment legislation for Latin America.

In fact, funding, pace, scope, duration, and sustainability are all interwoven. There is a universal belief among government and NGO leaders that the pace is slowed by 1) a continuing disagreement over liability; 2) an increasingly assertive Russian security service, and; 3) a shakeup of the Russian government, most notably the downgrading of the once powerful Ministry of Atomic Energy (MINATOM) to the status of a federal agency.[88] Gosatomnadzor (GAN), Russia's equivalent to the Nuclear Regulatory Commission, was also downgraded and subsumed under the new Ministry, calling into question Russia's ability to independently monitor nuclear safety.

Igor Khripunov calls the shakeup "reform Russian style." There was no public discussion and the decision came as a shock to MINATOM personnel. Four commissions studied the Russian bureaucracy and came up with four reports, ranging from conservative to far reaching. For MINATOM, the changes are profound. The former "power ministry" lost policymaking and budget powers, as well as the ability to sign international agreements. It looks likely that administration of all ten "nuclear cities" will be transferred to the Ministry of Defense. Under the new arrangement, MINATOM, now the Federal Agency for Atomic Energy, reports to the new Ministry of Industry and Energy or the Ministry of Defense, depending on how closely the former MINATOM program is to the weapons programs. The reshuffling, made official by Russian Presidential Order 316 on March 9, 2004, has cast into doubt the status of ongoing U.S.-Russian nuclear cooperation negotiations and will certainly mean a new set of players for new initiatives. U.S. and Russian officials are not sure whether the changes

[88]Digges, Charles. Bellona Nuclear Industry. 30 Mar. 2004. Bellona. 7 Apr. 2004 <http://www.bellona.no>.

bode well or ill for cooperation, but there is bound to be at least an initial slowdown as the new bureaucracy takes shape. May, 2004 was "reserved" to allow for reorganization.

With respect to the security services, one official said, "The security services used to have a role, now they have control." Other analysts dispute that characterization, saying the Russian government is sticking to agreements and rules, the hallmark of most bureaucracies worldwide, and working less "by exception."

Congressman Duncan Hunter has been the loudest critic of Nunn-Lugar, mostly on grounds that projects have been wasteful and that Russia will use CTR "savings to fund military programs that are contrary to U.S. national security interests."[89] Hunter concluded a *Washington Post* editorial saying, "If the Cooperative Threat Reduction program is to once again benefit U.S. national security, it must refocus its resources on real threats and ensure real Russian cooperation."[90] Hunter's critique refers to a $100 million dollar facility built in Krasnoyarsk to convert rocket fuel from Russian nuclear missiles into commercial products. The idea fit the Nunn-Lugar philosophy perfectly. Unfortunately, the Russians used the rocket fuel in their space program and the U.S. was left with an embarrassing and unneeded expenditure. According to a DOD official involved in warhead emergency response and "chain of custody" cooperation, the Krasnoyarsk episode has been "devastating" for DOD programs. Increased oversight by DOD managers, eager to avoid a repeat of the Krasnoyarsk experience, calls into question the sustainability of the Nunn-Lugar effort. A similar occurrence took place in Votkinsk where local leaders blocked a CTR project after much money had been expended.

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[89] Congressman Hunter, Duncan (R-CA). "Wasteful 'Threat Reduction' in Russia." Washington Post 04 Mar. 2003.
[90] Ibid.

VIII. International Strategy and Environmental Cooperation

Russian President Vladimir Putin has endorsed the "internationalization" of the cooperative threat reduction effort. "I consider that the problem of nonproliferation is one of the chief problems of the 21st century, and one of the most acute problems, for the solution of which all civilized countries ought to join forces."[91] The international community has become more involved with Russian nuclear issues, particularly in the environmental field. However, there is no substitute for experience, resources and expertise of the United States. U.S. leadership will be required to coordinate the new international initiatives to avoid duplication and to apply pressure to translate promises to programs.

Nine countries joined the U.S. in signing the "Multilateral Nuclear Environmental Program in the Russian Federation" (MNEPR) on May 21, 2003 in Stockholm.[92] MNEPR is principally aimed at Russia's nuclear waste problem in the Northwest where nearly 100 tons of spent uranium is stored from 115 decommissioned nuclear submarines.[93] The agreement resolved one of the biggest impediments to cooperation by dropping the Russian tax that had been applied to some international assistance programs. Donor countries were frustrated that the computers and other equipment they were trying to give to Russia was being held up in Russian Customs for customs duties.

An even bigger international contribution is expected from the G-8, although so far there have been few tangible results seen from the "G-8 Global Partnership"

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[91] Russian President Vladimir Putin Remarks at Press Conference Following Group of Eight Heads of State and Government Meeting, Evian, France, June 3, 2003. Ministry of Foreign Affairs of the Russian Federation, 5 June 2003. www.in.mid.ru Accessed 24 April 2004.
[92] "MNEPR" was signed by the US, Belgium, the United Kingdom, Denmark, France, Germany, Norway, Sweden, the Netherlands, Finland, and the European Community and the European Atomic Energy Community. www.bellona.org accessed 24 April 2004.
[93] Ibid.

announced in Canada on June 27, 2002. G-8 countries, again with the U.S. in the lead, pledged $20 billion over 10 years for Russian nonproliferation programs at the G-8 summit in Kananaskis, Canada. Summit leaders stated, "Among our priority concerns are the destruction of chemical weapons, the dismantlement of decommissioned nuclear submarines, the disposition of fissile materials, and the employment of former weapons scientists. We will commit to raise up to $20 billion to support such projects over the next ten years."[94] That pledge by the Global Partnership also became known as "10 plus 10 over 10;" $10 billion from the U.S., plus $10 billion from G-8 partners over 10 years. Russia itself has pledged $2 billion to the G-8 effort. While much of that $2 billion may be "in-kind" contributions, it does show a Russian willingness to be a partner in the process, rather than simply a recipient of assistance. It also allows Russia to diversify its nonproliferation effort and see how it fares with other partners.

The G-8's $20 billion contribution is favorable to Russia in several respects. First, the G-8 is an institution Russia respects, and Russia enjoys the benefits of membership; although Russia's economy does not merit entry under "normal circumstances." The G-8 is also interested in funding projects that Russia wants, namely general purpose submarine dismantlement (the U.S. will only fund dismantlement of the strategic submarines) and chemical weapons dismantlement. Russian officials also believe that G-8 projects will come with fewer strings than U.S. programs. That may or may not be the case. G-8 participation *will* provide more accountability and transparency and virtually all U.S. observers see G-8 participation as positive. According to RANSAC's Bill Hoehn, the G-8 ties Russia to Europe and helps move Russia beyond the

[94] G-8 Information Center, Kananaskis Summit, Statement by G-8 Leaders: The G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction."27 June 2002. www.g7.utoronto.ca accessed 24 April 2004.

Cold War framework. A Congressional source well-disposed towards CTR said the U.S. should not "subcontract American National Security to the Europeans."

The Europeans and Japanese will have their own priorities. A DOD official said Japan may decide to buy nuclear emergency response vehicles in the Far East and European countries may want them available in Western Russia. Each vehicle costs about $200,000 and could respond to a nuclear accident that could potentially affect Europe or Japan.

Aside from the G-8 initiative, experts suggest a need for further internationalization, through the auspices of the IAEA to create a "nuclear fuel bank" and "multinational nuclear fuel cycle centers." These operations could function much like the U.S. strategic oil reserve, with countries making deposits and withdrawals of nuclear material under strict international controls.[95] The international community could also promote next generation nuclear energy technologies that do not use or produce nuclear weapons grade fuel. The international community must come to grips with the international nuclear spent fuel and nuclear waste problem, something the US and Russia can lead the way on. Finally, the signatories to the Nuclear Nonproliferation Treaty pledged in Article 6 to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international

[95] "Changing Dimensions of Nuclear Proliferation: Challenge and Response," Address by Lawrence Scheinman, Monterey Institute of International Studies at Watson Institute, Brown University, Providence, RI, 08 April 2004.

control."[96] The Nunn-Lugar program can be seen as a critical step towards the goal of nuclear disarmament.

Fissile material from Russia and the U.S. that was sent to other countries under the "atoms for peace" program is now seen as a liability. Paul Leventhal of the Nuclear Control Institute says countries that have "gone nuclear" have done so using the civilian nuclear fuel cycle and atoms for peace can become "a shortcut to atoms for war."[97] Russian American Nuclear Advisory Council Washington Office Director Bill Hoehn believes that an international nuclear and radiological cleanout at civilian reactors around the world is critical. DOE has budgeted $450 million towards this effort with the newly announced Global Threat Reduction Initiative.[98] HEU Residing in research reactors around the world will be sent to Russia or the U.S. for safeguarding or disposal. HEU is the most likely material a terrorist would use for a nuclear device. The U.S. also has a program (Reduced Enrichment for Research and Test Reactors, RERTR) to replace HEU at research reactors around the world with alternate fuel that can not be used in weapons. Hoehn says this program must be accelerated.

Finally, the international community can play a key role in strengthening Russia's adherence to international export control laws. William Martel and Steven Miller suggest in Cooperative Denuclearization that the London Suppliers Group should be involved to ensure that Russia is brought "into full compliance with international standards."[99]

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[96] The Treaty on the Non-Proliferation of Nuclear Weapons, Signed at Washington, Moscow and London, 1 July 1968, Ratified by the US Senate 13 March 1969.
[97] Broad, William. "Plowshare or Sword?" The New York Times 27 May 2004.
[98] Charbonneau, Louis. "U.S., Russia Work with U.N. on Global Nuke Threat." Reuters Alert Net 26 May 2004.
[99] William C. Martel and Steven E. Miller, Chapter 7: "Controlling Borders and Nuclear Exports, Allison, Graham , et al. "Cooperative Denuclearization." CSIA Studies in International Security 2. Harvard University, (1993), 204.

Environmental Cooperation. Mention environmental remediation in Russia and most American policymakers get nervous because of the enormity of the problem and potential expense for the United States. Chris Patten of European Commission, however, makes a strong case for international environmental cooperation:

> Future generations will not understand if we do not act now to tackle the legacy of environmental degradation, and above all the legacy of dangerous nuclear material left in northern Europe. Blaming the failures and mistakes of the past is not an answer. The international community has to act together, in full partnership with Russia, to ensure that what can be described as a hazard today, does not become a disaster tomorrow.[100]

Environmental remediation is one of the major remaining potential areas for U.S.-Russian nuclear cooperation that is not aggressively funded. Several considerations argue against U.S. cooperation. The U.S. of course faces its own pressing nuclear remediation challenges. *Science Magazine's* "Policy Forum" advises that "the cleanup program for the nuclear weapons complex (in the U.S.) could cost more than $300 billion" and that "more than $60 billion had already been spent without a corresponding reduction in actual risk."[101] Environmental cleanup of Russia's nuclear legacy is looked at as a potential "black hole" for funds. MIT researchers note that the "cost of cleanup will exceed the total costs associated with producing the nuclear weapons in the first place."[102] The scale of Russia's environmental damage is much greater. "Over its

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[100] Speech by Chris Patten, European Commission, Northern Dimension Environmental Partnership Pledging Conference - SPEECH/02/327 - Brussels, 9th July 2002 - http://europa.eu.int/comm/external_relations/news/patten/sp02_327.htm Accessed 27 April 2004.
[101] Habegger, J L., et al. "Avoiding Destructive Remediation at DOE Sites." Science" 12 Mar. 2004: 1615-1616.
[102] Dalton, Russell J., et al. Critical Masses: Citizens, Nuclear Weapons Production, and Environmental Destruction in the United States and Russia. Cambridge, Massachusetts: The MIT P, 1999, 382.

lifetime, Mayak has released more than twenty times the radiation of Chernobyl, and encompasses some of the most radioactive land on this planet."[103]

The reality of the environmental challenge is not in doubt. The concern is that money destined for Russian clean up will not necessarily enhance U.S. national security. There is also the unfortunate precedent of international assistance to the Soviet Union in the aftermath of the Chernobyl disaster. Millions of dollars destined for Chernobyl cleanup disappeared before ever being put to good use.[104]

Still, environmental restoration was one of the building blocks of the proposed U.S. strategy as outlined in "Cooperative Denuclearization." Robert Darst argues compellingly that environmental restoration supports overall U.S. goals in four major ways: "

> 1) Experience gained in addressing the environmental problems created by the Soviet nuclear complex may help resolve similar problems in the United States and vice-versa.
>
> 2) Environmental restoration and research provides employment for scientists and engineers otherwise displaced by denuclearization. (Or who stay in the nuclear field doing work contrary to U.S. interests.)
>
> 3) Stressing the importance of environmental restoration and research increases the political salience of cooperative denuclearization and broadens its base of social support.
>
> 4) International assistance for environmental protection in the NIS is politically linked to the process of denuclearization."[105]

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[103] Ibid, 381.

[104] "Ukraine: Misuse of funds at Chernobyl." Radio Free Europe. Radio Liberty. 1 July 1998. 13 Apr. 2004 "Ukrainian Finance Ministry inspectors have identified massive misuse of clean-up funds at the Chernobyl nuclear plant, ITAR-TASS reported on 1 July. The government press service said that approximately 10 million hryvnas (US$ 5 million) have been embezzled, misappropriated, or misused. After levying fines on officials involved, the auditing service has taken control over all moneys in the fund. "

[105] Robert Darst, Chapter 8: "Environmental Restoration and Research, Allison, Graham , et al. "Cooperative Denuclearization." CSIA Studies in International Security 2. Harvard University, (1993), 230-231.

Despite concerns that Alaska's billion dollar fishery could be threatened by radionuclides in the sediment of the Ob, Yenesiy and Lena rivers, all of which are contaminated and flow north into the Arctic Ocean, research by the Arctic Monitoring and Assessment Program (AMAP) indicates that "in general, levels of anthropogenic radionuclides in the Arctic environment are declining."[106] Still, AMAP says that "compared to other areas of the world, the Arctic contains large areas of high vulnerability to radionuclides."[107] Areas where nuclear reactors were dumped in the arctic are also carefully monitored by AMAP.

From the nonproliferation point of view, U.S. observers would like to see a distinction drawn between dangerous nuclear material that could pose a threat to the international community and programs that subsidize Russia's nuclear cleanup. The international community did come together in 1994 for a "tabletop" radiological emergency exercise in which a radiological release from the fictional "Arcticland" nuclear power plant sent a plume of radiation around the eight Arctic countries. Participants reported what action they would take as the levels of radiation rose. The idea was to standardize the response and share information on how emergency officials would cope with such a disaster.

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[106] AMAP, 2002. Arctic Pollution 2002 (Persistent Organic Pollutants, Heavy Metals, Radioactivity, Human Health, Changing Pathways). Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway, p x.

[107] Ibid.

IX. U.S. Nuclear Posture

Cooperative Threat Reduction is just part of the overall U.S. nonproliferation effort. U.S. nonproliferation goals and overall U.S. nuclear strategy are inextricably linked. The larger the role played by nuclear weapons in national strategy, the more fissile material will be produced and require safeguards. If one assumes U.S. and Russian nuclear stockpiles will maintain rough parity, then it is clear that the U.S. will in some ways dictate the scope of the nonproliferation challenge in Russia, since Russian strategic nuclear decisions to a large extent mirror the size of America's nuclear complex.

Nonproliferation experts universally applaud President Bush's remarks on proliferation at the National Defense University on February 11, 2004 in which he proposed to expand Nunn-Lugar.[108] However, nonproliferation expert Rose Gottemoeller at the Carnegie Endowment sees a "contradiction" between the Bush Administration's positive nonproliferation rhetoric and its support for new nuclear weapons such as the low-yield Robust Earth Penatrator or "bunker buster." Gottemoeller and other experts worry U.S. international credibility could suffer if the U.S. moves to make nuclear

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[108] President George W. Bush, President Announces New Measures to Counter the Threat of WMD, Remarks, Fort Lesley J. McNair - National Defense University, Washington, D.C., February 22, 2004. I propose to expand our efforts to keep weapons from the Cold War and other dangerous materials out of the wrong hands. In 1991, Congress passed the Nunn-Lugar legislation. Senator Lugar had a clear vision, along with Senator Nunn, about what to do with the old Soviet Union. Under this program, we're helping former Soviet states find productive employment for former weapons scientists. We're dismantling, destroying and securing weapons and materials left over from the Soviet WMD arsenal. We have more work to do there.

And as a result of the G-8 Summit in 2002, we agreed to provide $20 billion over 10 years -- half of it from the United States -- to support such programs. We should expand this cooperation elsewhere in the world. We will retain [sic] WMD scientists and technicians in countries like Iraq and Libya. We will help nations end the use of weapons-grade uranium in research reactors. I urge more nations to contribute to these efforts. The nations of the world must do all we can to secure and eliminate nuclear and chemical and biological and radiological materials."

weapons just another part of the U.S. arsenal. That could send the wrong signal to other countries which are thinking about expanding or starting a nuclear arsenal. Joseph Cirincione, director of the Non-Proliferation Project at the Carnegie Endowment for International Peace in Washington, says bunker busters would lead to proliferation by other nations:

> That's not in the United States' national security interests. Given that we have never accepted a nuclear weapon into our arsenal without testing -- with the exception of the Hiroshima bomb -- the path the Bush administration is on also greatly increases the likelihood that the United States will return to nuclear testing, which would be a terrible blow to the nonproliferation regime.[109]

Senator Jack Reed (D-RI) agrees: "The United States and other nuclear states must reduce the role of nuclear weapons in our own security policy. The United States in particular must lead by example and not engage in 'do as I say, not as I do philosophy.' Towards this end, the United States should maintain its nuclear test moratorium and reconsider ratification of the 1996 Comprehensive Test Ban Treaty."[110] The National Academies of Science has also determined that a well fortified bunker would probably not be susceptible to much damage, even from a nuclear weapon.[111] The collateral damage and radiation also make the use of such a weapon impractical.

As stated in Cooperative Denuclearization, the end of the Cold War brought the world to a fork in the road:

> Down one path lies the elimination of nuclear weapons from the central role they have played in international life for fifty years.... However, a second path leads to a quite different twenty-first century. Down that path current promises are never realized.... Some of the tens of thousands of these nuclear weapons break loose –

[109] Kitfield, James. "Pros and Cons of New Nuclear Weapons Debated." Online posting, 18 Aug. 2003. Government Executive Magazine. 28 Apr. 2004, <www.govexec.com>.
[110] Remarks by Senator Jack Reed in closing address to Arms Control Association's Paul C. Warnke Conference on the Past, Present, and Future of Arms Control, January 28, 2004, Georgetown University, Federal News Service.
[111] Matthews, William. "Scientists: Bunker-Busting Nukes are Unreliable." Online posting. 3 May 2004. Defense News. 20 May 2004 <www.defensenews.com>.

> lost or sold in international markets to political extremists, terrorists, or rogue states. Down this second path, a dramatic spread of nuclear weapons, in new and dangerous forms, could dominate the early decades of a new century."[112]

Many observers note that "arms control is dead." Nikolai Sokov of the Monterey Institute says abandoning arms control, even at a time of lessened international tension, is a mistake.[113] Arms control leads to transparency that can lessen the chances of an inadvertent crisis. The direct connection to Nunn-Lugar is that while some say the size of Russian nuclear stocks doesn't matter, the fact is that.the larger the nuclear establishment is in Russia, the more HEU and plutonium will be produced, leading to the very problems Nunn-Lugar was designed to control.

[112] Cooperative Denuclearization. P. 1-2
[113] Author interview 12 April 2004.

X. CONCLUSION AND RECOMMENDATIONS

America's challenges have always been surmountable when the public is informed and policymakers united in their determination to work together. There is a lot going right in U.S.-Russian nuclear cooperation. President Bush has made a strong case for strengthening Nunn-Lugar programs and has explicitly identified the threat. Although there are philosophical differences about Nunn-Lugar, it remains a successful bipartisan endeavor. And yet, there is still a lack of public awareness about what the Nunn-Lugar program is, what it is trying to accomplish, and the consequences of failure.

The U.S. will continually "rebalance" its nonproliferation portfolio, as the Carnegie Endowment's Joseph Cirincione puts it, to adapt to new threats and challenges. Russia will remain one of the highest value stocks in that portfolio, simply by virtue of the amount of fissile material, nuclear expertise, and weapons in the country. As Russia becomes more self-reliant, the tendency to withdraw from assistance programs will increase. There will be pressure from the U.S. for Russia to "graduate," as assistance professionals say of states whose economies can function without international support. Russians will want to run independent nonproliferation and nuclear security projects as funds become available.

This is not the world of 1992 when the CTR agreement was signed. Russia is stronger economically, but not yet a full member of the Western community of nations. Sergei Khrushchev believes it may be 50 to 100 years before Russia is a truly democratic country that respects the rule of law.[114] Krushchev believes Russia's development will take time, not because of 70 years of communism, but because of hundreds of years of

[114] Sergei Krushchev, Professor, US Naval War College, Author interview 20 April 2004.

tradition in which power was exercised without the constraint of full respect for the rule of law. But Russia has surprised us before, and, if the U.S. is willing to do the hard work required to forge a partnership that relies on mutual interests, there is hope that Russia will fulfill much sooner the potential inherent in its tremendous resources and intellectual capital.

Most observers from the nuclear community believe Russia under Putin is a more centralized, authoritarian state than the sometimes "chaotic" Russia under Yeltsin. That does not necessarily translate into a direct threat for the United States, but it does mean the CTR program must evolve to serve American interests while understanding new realities in Russia. American officials involved in CTR are sometimes the most astute students of Russia and can provide U.S. policy makers with insights into Russia's changing political landscape.

The U.S. must shift the focus from assistance to partnership. Accounting for and securing fissile material in Russia will remain a concern for the U.S., regardless of political and economic conditions. U.S. programs must be flexible to address not only U.S. concerns, but to a large extent Russian priorities as well, so that the U.S. maintains the access, contacts and programs that do advance U.S. national security. As Igor Khripunov says, Nunn-Lugar can be a "flexible instrument of U.S. policy" that ensures that when the last missile is destroyed under CTR, the U.S. does not simply pull out leaving environmental problems and bitter feelings.[115]

Many well-respected nonproliferation experts see an attack on the U.S. using radiological material as inevitable. Their warnings are serious. One nuclear expert interviewed for this report said he was optimistic that Nunn-Lugar programs would

[115] Author interview, 15 April 2004.

continue to make progress, but was pessimistic about the chances of keeping weapons of mass destruction out of the hands of terrorists. This is why the pace of the Nunn-Lugar programs is so critical. As former Senator Sam Nunn put it: "We are well past the time when we can take satisfaction with a step in the right direction. A gazelle running from a cheetah is taking steps in the right direction."[116]

This report sides with the optimists. The Carnegie Endowment notes that the outlook for nonproliferation has been grim in the past, but there have also been positive developments, and we should not throw up our hands because of the magnitude of the problem. "Few people appreciate that more countries have abandoned nuclear weapons programs over the past 15 years than have acquired nuclear weapons....While today's proliferation challenges are real and acute, the track record in uncovering, confronting and reversing proliferation with established tools is actually quite strong."[117]

The conclusion of this study is not that an attack using nuclear material is inevitable. The *attempt* is inevitable. Our best efforts at home and abroad can thwart an attack through concerted action. If our worst fears are realized, the U.S. will respond, and recover, but the damage of any type of nuclear terrorism would be immense. That is a sobering thought. In the nuclear realm, terrorists must be given no quarter, no sanctuary, no leverage, no access... and no victories.

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[116] Press Release, Nuclear Threat Initiative: "Public Education Campaign Urges Action Now To Reduce Nuclear, Biological and Chemical Threats; *Nunn: "We Need to Pull Together to Prevent A Crisis"* 17 September, 2003.

[117] Issue Brief: "The Key Proliferation Questions." Washington, DC: Carnegie Endowment for International Peace, 24 March 2004.

Recommendations. 1) OBJECTIVE: Commit to global American leadership on nonproliferation and arms control. The US should highlight Nunn-Lugar as the template for a rejuvenated arms control and nonproliferation effort. US-Russian nuclear cooperation is a success and the problems are mostly technical and fixable. U.S. technical expertise enables the United States to assume leadership and set the pace for international nonproliferation efforts.

The U.S. took an important first step in this regard with the announcement in Vienna on May 26, 2004 of the "Global Threat Reduction Initiative." U.S. Energy Secretary Spencer Abraham said the $450 million initiative is a "strategy for addressing the threat posed by the entire spectrum of nuclear materials." Under the plan, HEU of Russian-origin will be returned from nuclear programs in various countries to Russia for safeguarding and disposal. Abraham said the initiative "reflects the realities of the 21st century that were made so startling clear on a September morning three years ago."[118]

2) OBJECTIVE: Ensure that the American nuclear weapons stockpile remains low, thus shrinking the target for terrorists. While terrorism dominates US concerns, the lack of a strategic competitor allows the U.S. to downsize its own reliance on nuclear weapons and lead other nations in the same direction. The U.S. needs to adhere to the spirit of the Nuclear Nonproliferation Treaty, which calls for eventual denuclearization, and find ways to further reduce nuclear weapons from its arsenal and doctrine. The smaller the nuclear establishment in the U.S., the smaller it is likely to be in Russia and other countries. (Does the U.S. need more than twelve nuclear weapons if other countries have similar minimal nuclear arsenals?)

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[118] Charbonneau, Louis. "U.S., Russia Work with U.N. on Global Nuke Threat." Reuters Alert Net 26 May 2004.

The U.S. should ratify the Comprehensive Test Ban Treaty and seek ways to sign a deal with Russia on Section 123 of the Peaceful Uses of Atomic Energy Act. The U.S. should not resume nuclear testing, even for low yield nuclear devices, because of the proliferation consequences that would surely follow.

3) OBJECTIVE: Complete Nunn-Lugar programs as quickly as possible to secure all nuclear weapons and materials in Russia now. The pace of Nunn-Lugar cooperation should be accelerated as President Bush called for in this year's National Defense University speech and its scope expanded. Nunn-Lugar is a front line effort in the War on Terror and should be on a "fast track, especially" given the apparent determination of terrorists to raise the stakes to ever greater casualty levels. No doubt an act of terrorism on U.S. soil would stimulate an immediate demand to safeguard nuclear weapons and materials around the world. The U.S. should determine the steps that would be taken after an act of nuclear terrorism on U.S. soil, and preemptively take those steps now. Perhaps there is still a "grand bargain" to be made for excess fissile material.

The U.S. and Russia should follow the formula outlined in the Spring 2003 "Nonproliferation Review" for solving the liability question. Liability sharing is an equitable, common sense way to break this impasse to allow work to continue under the Nuclear Cities Initiative and Plutonium Disposition program. The U.S. should work with Russia to accelerate the HEU blend down program and the "HEU Global Cleanout" campaign to repatriate and store U.S. and Russian-origin highly enriched uranium.

4.) OBJECTIVE: Raise the profile of Nunn-Lugar programs with more senior level government involvement. U.S. and Russian Presidents or Vice Presidents should meet once a year to further U.S.-Russian nonproliferation efforts. High level

summits lead to "deliverables," and if the President insists on progress, advances will be made. Former Senator Sam Nunn says the "sustained, focused leadership is the key here.[119]" A "Nonproliferation Czar" might or might not move things forward; Presidential leadership would. The President should also designate a cabinet-level official, either the Vice President, Secretary of Energy, or Secretary of Defense to serve as 'Point Person' on U.S.-Russian nonproliferation issues to prepare for such summits.

The G-8 summit this June provides an ideal forum for Presidential leadership and increased media and public awareness. *The New York Times* published an editorial the day this paper was submitted saying that in terms of nuclear concerns:

> The biggest danger point remains Russia, where huge stockpiles of nuclear weapons and materials usable in weapons become vulnerable to theft and smuggling.... Faster progress will require the sustained, personal involvement of Presidents George Bush and Vladimir Putin, who have the power to sweep away bureaucratic obstacles. They need to make the issue a priority when the G-8 meets next month.[120]

5.) OBJECTIVE: Promote grass roots support for Cooperative Threat Reduction to ensure progress and sustainability. Public education in Russia and the United States for Cooperative Threat programs is vital to sustainability. There *is* high level support for the programs in both countries, but that support is not bolstered by grassroots involvement or awareness. Future political leaders would not risk much political capital by abandoning what should be a long term effort. The U.S. and Russia should broaden the "people to people" exchanges of professionals, politicians, and students to foster mutual understanding and develop a constituency in both countries for improved relations and to continue this vital work.

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[119] "Preview of the G-8 Summit." Former Senator Sam Nunn, C-Span, 26 May 2004.
[120] "A Real Nuclear Danger," Editorial. The New York Times 28 May 2004.

6.) OBJECTIVE: Ensure that Russia is a reliable nonproliferation partner and an increasingly integrated member of the community of nations. The U.S. can not take Russia for granted as a strategic partner without ensuring Russia's economic success. Whether the U.S. failed to transform Russia through a "Marshall Plan" effort in the early 1990's or whether Russia's own leadership failed to have a vision that would bring Russia more fully into the economic community is for historians to decide. Russia as a failed state is in no one's interest. The U.S. should find ways to bring Russia more fully into the community of nations using the international institutions that exist for nation building. The World Bank, International Monetary Fund and the G-8 should all be more involved with Russian democratic reform. The U.S., meanwhile, should elevate U.S.-Russian bilateral relations to the top of the foreign policy agenda.

The US can also promote increased economic assistance for Russia on a *quid pro quo* basis, conditioning aid explicitly on Nunn-Lugar progress. To make these types of bargains requires high level engagement as recommended earlier. Conditioning assistance on explicit returns also prevents false hopes of economic assistance that will not be forthcoming.

Finally, linkages can be made with Russian defense spending that the United States believes is not in the best interests of global stability. If the U.S. leads by example, reducing its defense spending, savings in Russian defense spending can be channeled into productive Cooperative Threat Reduction and social programs.

As the National Research Council notes, there is no "silver bullet" to accomplish the goal of securing every weapon, employing every nuclear scientist, and accounting for every gram of fissile material. No matter how unrealistic or far-reaching that goal may

seem, the path to realizing the security envisioned by Nunn-Lugar lies not just in funding Nunn-Lugar initiatives, but changing Russia's centuries-long culture of secrecy and closed doors to a culture of openness and cooperation. That requires engagement with Russia on every level, from student exchanges, to high level summits.

7) OBJECTIVE: Build goodwill with the Russian populace through environmental remediation. The U.S. should continue its involvement in environmental programs that monitor radionuclide contamination in the Arctic, given the U.S. fishery in Alaska. Further, the U.S. should adopt what NTI Vice President Laura Holgate calls "a more nuanced approach to nuclear remediation"[121] and not automatically reject environmental assistance. Environmental assistance can serve U.S. public diplomacy goals and Russian expertise can be useful in America's own clean up efforts.

8.) OBJECTIVE: Take responsibility for Cold War nuclear stewardship. This US and Russia should recognize that cleaning up the legacy of the Cold War is the responsibility of *this*, and not just future generations. Since the two superpowers spent trillions of dollars building and developing nuclear weapons, the responsibility is theirs now to safeguard and dispose of these weapons and materials.

The gravest danger our Nation faces lies at the crossroads of radicalism and technology. Our enemies have openly declared that they are seeking weapons of mass destruction, and evidence indicates that they are doing so with determination. The United States will not allow these efforts to succeed. ... History will judge harshly those who saw this coming danger but failed to act. In the new world we have entered, the only path to peace and security is the path of action. President Bush, The National Security Strategy of the United States of America, September 17, 2002.

[121] Author interview, 29 March 2004.

SANDIA NATIONAL LABORATORY GUIDE TO

NEGOTIATING WITH RUSSIANS

Differences in Approach to Negotiating

- The importance Russians attach to knowing their partners cannot be overstated. Americans who are new to a negotiation can expect to be tested by Russian counterpart. Avoid making changes to the negotiating team as much as possible.
- Russians won't be ready to get down to brass tacks unless they determine US side is ready to be a serious negotiating partner.
- Russians probe for weakness and assess how strong or determined you are. Russians understand and respect strength, firmness, resolve. An effective US negotiator will demonstrate these qualities.
- Russians are more patient than Americans; Americans are often more anxious to get an agreement, so will give in earlier than Russians will.
- The whole context of the negotiation is important to the Russian, while Americans pay little attention to context. Russians emphasize form, while US is much more concerned with substance and downplays the importance of form.
- Americans like to get down to concrete business; Russians like to agree on general principles first. They like to look at the overall picture of what this project means for US-Russian relations.
- Russians see these principles as the most important elements of negotiations; Americans focus on details, schedules, and deadlines.
- Often it is impossible for a Russian to give you a specific date by which a deliverable will be ready—this does not mean he thinks it's unimportant or he is not prepared to deliver. He is bound by constraints beyond his control.
- Russians do not like surprises. If you put a new idea or proposal on the table, do not put Russians on the spot by asking what they think of it or expecting an immediate answer to it. Try floating new ideas informally first.
- Russians may negotiate to agreement and then turn to superiors at home for approval; they may come back later with new demands.
- Russian negotiators do not take a US "no" to be a final position. They keep probing for more give. When they meet strong resistance, they'll back off.
- When a Russian negotiator says "no," it can mean "we're not comfortable with this now but that may change later" or "we can't give a yes or no answer right now." It does not necessarily mean a categorical no.
- Face-saving is important to Russians, so choose your battles wisely. Decide which issues are worth making a fuss over.
- If Russians make a point or explain a principle, they will take silence on the US side to mean agreement. If you don't agree, make that clear. They do not apply this principle to themselves.

APPENDIX A

SAMPLE SMUGGLING INCIDENTS
NIS Export Control Observer
December 2003/January 2004

Date Of Report	Material Seized	Quantity of Material	Reported Origin	Reported Destination	Seized Where	Suspect
12/17/03	Radioactive Tubes	Unspecified	Possibly Naval Base, Vilyuchinisk	Vladivostok	Petropavlosk	None
12/09/03	Radioactive Scrap Metal	Unspecified	Chornobyl, Ukraine	Unspecified	Kiev, Ukraine	Six suspects
12/1/03	Radioactive Waste	Unspecified	Possibly Riga, Latvia	Moscow	Pskov Oblast	None
11/22/03	Cesium 137 Curium 243	"A small amount"	Unspecified	Unspecified	Shymken, Kazakhstan	One Suspect
11/17/03	Strontium 90	10 kgs	Kola navigational beacons	Unknown	Near Beacons	None
10/24/03	Strontium (?) 90	Unspecified	Unspecified	Unspecified	Riga, Latvia	Four Suspects
10/3/03	Uranium unknown enrichment	1 kg	Murmansk	Unspecified	Murmansk	Atomflot Deputy Director
9/26/03	Cesium 137	Unspecified	Noyabrsk	Unspecified	Unknown	None
9/24/03	Unspecified	Unspecified	Packaged for Flight to US	Kiev, Ukraine	Kiev, Ukraine	One Ukrainian Citizen

APPENDIX B

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11/17/03	Strontium 90	10 kgs	Kola navigational beacons	Unknown	Near Beacons	None
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10/3/03	Uranium unknown enrichment	1 kg	Murmansk	Unspecified	Murmansk	Atomfloat Deputy Director
9/26/03	Cesium 137	Unspecified	Noyabrsk	Unspecified	Unknown	None
9/24/03	Unspecified	Unspecified	Packaged for Flight to US	Kiev, Ukraine	Kiev, Ukraine	One Ukrainian Citizen

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