

# The US-Russia Role in Nuclear Nonproliferation

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## *Introduction*

It is hard to imagine that, after the world witnessed the devastating effects of the United States (US) dropping atomic bombs on the cities of Nagasaki and Hiroshima, the US and former Soviet Union would pursue a nuclear arms race that would result in the building of over 60,000 nuclear weapons—but that is exactly what happened during the Cold War. The bombs used on Nagasaki and Hiroshima had an explosive yield of less than 20 kilotons of TNT and killed roughly 200,000 people. The nuclear weapons manufactured by the Soviets during the Cold War held yields of 50 megatons of TNT, whereas the standard nuclear missile possessed by the U.S. today has a yield of up to 100 kilotons.<sup>1</sup> There would be significant casualties and devastating effects associated with a terrorist setting off a nuclear weapon in a U.S. city. Worse yet, nuclear war with another state having hundreds or even thousands of similar multi-warhead mounted missiles could change life on planet Earth as we know it. Considering the example of reckless weapons development that the U.S. and Russia set for the world during the Cold War, the responsibility for remedying the situation they created now falls to them.

In order to increase international security and reduce the risk of nuclear weapons and materials falling into the wrong hands, the US and Russia must set the example for the rest of the world, through bilateral nuclear arms reduction, development of state-of-the-art inventory systems based on transparency, and the promotion of global non-proliferation. Developments in U.S. foreign policy since the terrorist attacks on 9/11 have negatively affected the U.S.-Russian relationship, specifically the withdrawal from the *Anti-Ballistic Missile Treaty*. U.S. strategies in the post-September 11<sup>th</sup> era dealing with the nuclear threat have shifted from securing and protecting Russia's nuclear arsenal and fissile materials to building missile defense systems at home and abroad. This approach is costly, ineffective, and likely to escalate tensions between these two nuclear powers and should therefore be abandoned. The new focus of U.S. policy should be to create a partnership in which the U.S. and Russia can work together to decrease their nuclear arsenals, promote global non-proliferation, and secure all existing nuclear weapons and materials.

## *Background*

The Cold War ended over two decades ago, but many of the post-Cold War problems associated with Russia's nuclear weapons and material still remain. Shortly after the collapse of the Soviet Union, three major security issues emerged for U.S. policy makers regarding Russia's nuclear weapons and materials: securing and consolidating the former Soviet Union's tactical nuclear weapons, coping with and consolidating the nuclear weapons left behind in the former Soviet Union successor states, and preventing leakage of nuclear weapons and or materials to

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<sup>1</sup> "Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms" *The Weapons of Mass Destruction Commission*, last modified 2006, [http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument\\_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons\\_of\\_Terror.pdf](http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons_of_Terror.pdf)

terrorists or rogue states.<sup>2</sup> During this same period of instability in the former Soviet Union, Russia's banking and financial system collapsed almost completely; this added to U.S. concern over nuclear leakage, because the Russian government simply could not afford the costs associated with providing a proper level of security for its nuclear facilities.<sup>3</sup>

Aside from minor gains made in the consolidation of nuclear weapons and materials from the former Soviet successor states, very little has been accomplished to solve these security problems. In fact, with regard to leakage, there are hundreds of incidents since 1992 involving theft of weapons-grade highly enriched uranium (HEU), as well as plutonium, from the former Soviet Union.<sup>4</sup> In addition to the fissile material leaks, it is widely agreed by U.S. weapons designers that most states and terrorist organizations are capable of building an actual nuclear device once the fissile material is acquired.<sup>5</sup> A device like the ones used on Hiroshima and Nagasaki has a simple design—and with the information on how to construct one freely available on the Internet, the greater task becomes obtaining enough of the required fissile material.

S.F. Cohen provides a helpful summary of the present-day security situation in the former Soviet Union in his essay "U.S.-Russian Relations in an Age of American Triumphalism." He writes, "... [T]he former Soviet territories remain a Wal-Mart of dirty material and know-how. If terrorists ever explode a dirty device in the US, even a small one, the material is likely to come from the former Soviet Union."<sup>6</sup> The term "dirty material" refers to nuclear or radiological material. It should be noted that the difference between a "dirty bomb" and actual nuclear device is significant. A "dirty bomb" refers to an explosive device containing fissile material, but its explosion is not the result of nuclear reaction.

The *Weapons of Mass Destruction Commission* points out in its 2006 report, "Although states apply and implement their own standards, the chain of physical security is only as strong as its weakest link. The theft of fissile material somewhere can jeopardize security everywhere."<sup>7</sup> This important point is especially true for Russia, in light of the considerable security concerns at many of its facilities storing fissile material. As noted previously, the Internet has made gaining access to sensitive information—such as nuclear weapons designs—easier than ever before, which further magnifies the threat of any fissile leaks. As a result of these security concerns, the U.S. has taken steps, albeit small ones, towards securing Russia's nuclear materials.

Domestically, the U.S. has passed two laws that provide funding to Russia to help with nuclear disarmament, as well as adequate securing of fissile inventory facilities: the Nunn-Lugar Act of 1991 and the Nunn-Lugar-Domenici Act of 1996. As a result of the Nunn-Lugar laws, the

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<sup>2</sup> Graham T. Allison, Owen R. Jr Coté, and Richard A. Falkenrath, "Avoiding Nuclear Anarchy." *Washington Quarterly* 20, no. 3 (1997): 185.

<sup>3</sup> Stephen J. Cimbala, "Forward To Where? U.S.-Russian Strategic Nuclear Force Reductions." *Journal Of Slavic Military Studies* 22, no. 1 (2009): 69.

<sup>4</sup> International Atomic Energy Agency. Incident and Trafficking Database, *Incidents of Nuclear and Other Radioactive Material out of Regulatory Control. 2013 Fact Book*, last modified 2013, <http://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf>.

<sup>5</sup> Graham T. Allison, Owen R. Jr Coté, and Richard A. Falkenrath, "Avoiding Nuclear Anarchy." *Washington Quarterly* 20, no. 3 (1997): 191.

<sup>6</sup> S.F. Cohen, "U.S.-Russian Relations in an Age of American Triumphalism." *Journal of International Affairs* 63, no. 2 (2010): 200.

<sup>7</sup> "Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms" *The Weapons of Mass Destruction Commission*, last modified 2006, [http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument\\_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons\\_of\\_Terror.pdf](http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons_of_Terror.pdf).

U.S. has invested over \$5 billion as of 2005, 25% of which went to fund security efforts.<sup>8</sup> That is about \$357 million per year from 1991-2005. However, this defense expenditure is negligible when one considers that the 2009 budget for the U.S. Missile Defense Agency, an agency with the sole responsibility of designing an effective missile defense system, was roughly \$9 billion for just one year.<sup>9</sup> If the U.S. is going to take the threat of terrorism seriously, funding for the Nunn-Lugar laws need to be increased substantially.

Although the national conversation on the threat of Russia's nuclear weapons and/or materials is now almost non-existent, the danger that arose during the Cold War remains certainly as grave today, if not more so. Increasingly active terrorist networks in the Middle East, bad global economic conditions, and the use of missile defense systems by the U.S. are problems endemic to the early 21<sup>st</sup> century. Taken together, these issues make what was already a complex situation during the Cold War even thornier.

It is intriguing that there is such silence on this subject, given its destructive potential. While there are many potential explanations for the lack of conversation about these present-day threats, one could say that the poorly functioning U.S. economy is the greatest. It is arguable that since the economy in the U.S. has been stagnant since the Great Recession, the focus of the American people is on domestic issues such as health care and unemployment, not foreign affairs. The U.S. has had an estimated shortfall of 9.1 million jobs since the beginning of the Great Recession: Americans are wrestling with quotidian challenges that draw attention from more complicated and seemingly remote issues such as U.S.-Russian relations.<sup>10</sup> Put plainly, for many Americans, lack of employment and stagnant wages constitute an unpleasant and overwhelming daily reality that puts U.S.-Russian relations and hypothetical global nuclear security risks on the back burner.

Since the end of the Cold War, the relationship between Washington and Moscow has been complicated and generally erratic. While the reasons for this have varied, there are four key issues that are of major concern to both U.S. and Russian policy makers:

- the U.S. policy towards Russia's geopolitical neighbors
- the use of missile defense systems
- differing attitudes toward Iran
- domestic politics within the US and Russia.<sup>11</sup>

US policy toward the former Soviet successor states—Belarus, Armenia, Azerbaijan, Georgia, Moldova, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan—has put strain on U.S.-Russian relations.<sup>12</sup> Generally, US foreign policy has been one of expansion in the region. The North Atlantic Treaty Organization (NATO) is seen by Russia as the platform for U.S. expansion in an attempt to gain additional power and influence in the areas surrounding its borders.<sup>13</sup> Currently NATO is comprised of 28 member states; however, only five meet the original defense spending agreement target of 2% of national

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<sup>8</sup> Ibid.

<sup>9</sup> Greg Thielmann, "Strategic Missile Defense: A Reality Check," *Arms Control Association Threat Assessment Brief*, last modified May 2009, [http://www.armscontrol.org/system/files/TAB\\_StrategicMissileDefense.pdf](http://www.armscontrol.org/system/files/TAB_StrategicMissileDefense.pdf).

<sup>10</sup> Josh Bivens, Andrew Fieldhouse, and Heidi Shierholz, "From Free-fall to Stagnation." *Economic Policy Institute*, last modified February 14, 2014, <http://www.epi.org/publication/bp355-five-years-after-start-of-great-recession/>

<sup>11</sup> D.J. Kramer, "Resetting U.S.-Russian Relations: It Takes Two," *Washington Quarterly* 33, no. 1 (2010): 62.

<sup>12</sup> Ibid.

<sup>13</sup> Muhammad Saleem Mazhar, Samee Uzair Khan, and Naheed S. Goraya, "NATO Expansion," *Interdisciplinary Journal of Contemporary Research in Business* 4, no. 5 (2012): 265.

GDP.<sup>14</sup> The former Soviet successor states already mentioned are not members of NATO, but all of them, except for Moldova and Kyrgyzstan, are considered partners, which no doubt adds to Russian suspicions of U.S. intentions.<sup>15</sup>

Moscow's view is that Russia has "privileged interests" in these states and that U.S. expansion and NATO presence in these areas are a threat to national security because of their geopolitical location.<sup>16</sup> The aggressive extension of U.S. influence in the regions proximate to Russia's borders make building a relationship based on trust, cooperation, and mutual respect difficult, to say the least.

An additional source of tension between Moscow and Washington is their differing responses to Iran. While neither Washington nor Moscow wish to see Iran gain the capacity to produce nuclear weapons because of the potential domino effect of proliferation in the region and increased instability,<sup>17</sup> Iran is considered a significant commercial partner to Russia. Trade between the two nations amounts to roughly \$1 billion per year, with an additional \$300-400 million per year in arms sales alone.<sup>18</sup> Although Russia may not want to see Iran become a nuclear state, their financial ties make policy makers in Moscow leery of playing the bad guy—they are content to leave that role to the US.<sup>19</sup>

Domestic issues within both the U.S. and Russia also present challenges to building a strong bi-lateral relationship. Russia is still facing enormous difficulties with unemployment, public health, declining GDP, and external dependence on raw materials. Additionally, Russia's population has been declining an estimated 700,000 per year and may reach a low of 100 million by 2050.<sup>20</sup> These factors make Russian politicians more likely to deflect their population's attention from the problems they face at home, by shifting the attention to an external problem—such as U.S.-NATO expansion—in order to maintain control.<sup>21</sup> On the other hand, as noted above, the current state of the U.S. economy functions to obscure the importance of foreign relations, making the U.S.-Russian relationship a low political priority for elected officials.

Arguably, the event most damaging to the U.S.-Russia relationship in this century was President George W. Bush's withdrawal from the Anti-Ballistic Missile Treaty in 2001 and subsequent building of a missile defense system.<sup>22</sup> The Anti-Ballistic Missile Treaty (ABM Treaty) was a bi-lateral agreement between the U.S. and Russia reached in 1970 that banned the creation of a ballistic missile defense (BMD) system by either party.<sup>23</sup> U.S. withdrawal from the ABM Treaty and the subsequent building of missile defense systems in California and Alaska, as well as a proposed plan to expand such systems to Poland and the Czech Republic, threaten Russia for one major reason: Russia has weak conventional forces, especially in comparison to

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<sup>14</sup> Ibid., 268

<sup>15</sup> North Atlantic Treaty Organization, "Partners." *nato.int*. last modified April 2, 2012, <http://www.nato.int/cps/en/natolive/51288.htm>

<sup>16</sup> D.J. Kramer, "Resetting U.S.-Russian Relations: It Takes Two," *Washington Quarterly* 33, no. 1 (2010): 63.

<sup>17</sup> Brian Frederking, Motl, Kaitlyne; Timilsina, Nishant, "Nuclear Proliferation and Authority in World Politics," *Journal of International & Global Studies* 1, no. 1 (2009): 73.

<sup>18</sup> Paul Saunders, "The U.S. And Russia After Iraq." *Policy Review* 119, no. 1 (2003): 42.

<sup>19</sup> D.J. Kramer, "Resetting U.S.-Russian Relations: It Takes Two," *Washington Quarterly* 33, no. 1 (2010): 69.

<sup>20</sup> Ibid., 63.

<sup>21</sup> Ibid., 62.

<sup>22</sup> Greg Thielmann, "Strategic Missile Defense: A Reality Check," *Arms Control Association Threat Assessment Brief*, last modified May 2009, [http://www.armscontrol.org/system/files/TAB\\_StrategicMissileDefense.pdf](http://www.armscontrol.org/system/files/TAB_StrategicMissileDefense.pdf).

<sup>23</sup> "Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems." *US Department of State*, last modified 2013, <http://www.state.gov/t/isn/trty/16332.htm>

the U.S. Because of this, Russia's politicians rely heavily on their vast nuclear arsenal for international influence.<sup>24</sup> A fully operational U.S. BMD system thus threatens Russian security substantially: If Russia's ability to launch an intercontinental ballistic missile (ICBM) attack or counter-attack against the U.S. is substantially diminished by a BMD system, Russia loses a significant bargaining chip with respect to the U.S. in world affairs. Although the existing systems based in California and Alaska are not currently capable of stopping an all-out nuclear strike from Russia, they are a clear sign to Russia that the U.S. intends to reach that goal.

Finally, in its current economic state, Russia is in no position to compete in a BMD race with the US. This is due to both financial and technological constraints, which may be another reason there was so much opposition to the U.S. decision to withdraw from the ABM Treaty and pursue BMD systems. If Russia were in a position to build its own BMD system, perhaps it would not be as threatened by the current U.S. plans. The U.S. claims that its missile defense systems in California and Alaska are for protection against North Korea and that plans for missile defense systems in Poland are to protect U.S.-European interests from Iran, which is very close to attaining nuclear weapons technology.<sup>25</sup> Russia does not find these justifications persuasive, as it could certainly be argued that BMD systems in the Czech Republic and Poland would be better left to the Russians to build, considering their geographical and political proximity.

### ***The Conventional Nuclear Threat***

In order to gain additional perspective, it is helpful to look at the actual capabilities of the nine nuclear powers. Robert S. Norris and Hans M. Kristensen, in the *Bulletin of Atomic Scientists*, "Global Nuclear Weapons Inventories, 1945-2010," provide estimates of the conventional nuclear threats from the U.S., Russia, and the other seven nuclear powers. They estimate, "... [T]he world's nine nuclear weapon states possess nearly 22,400 intact nuclear weapons" and, "... [T]he vast majority of these weapons—approximately 95 percent—are in the US and Russian arsenals."<sup>26</sup> There are nine states to which Norris and Kristensen refer: the US, Russia, France, China, Britain, Israel, Pakistan, India, and North Korea. Only five of these, however, have nuclear weapons that are considered "operational": Russia (4,650), the US (2,468), France (300), China (180), and Britain (160).<sup>27</sup>

Below is a line graph that illustrates the U.S.-Russian arms race during the Cold War and ensuing decades. The points on the graph represent the number of nuclear arsenals of each state at five-year intervals beginning in 1945 and ending in 2010.

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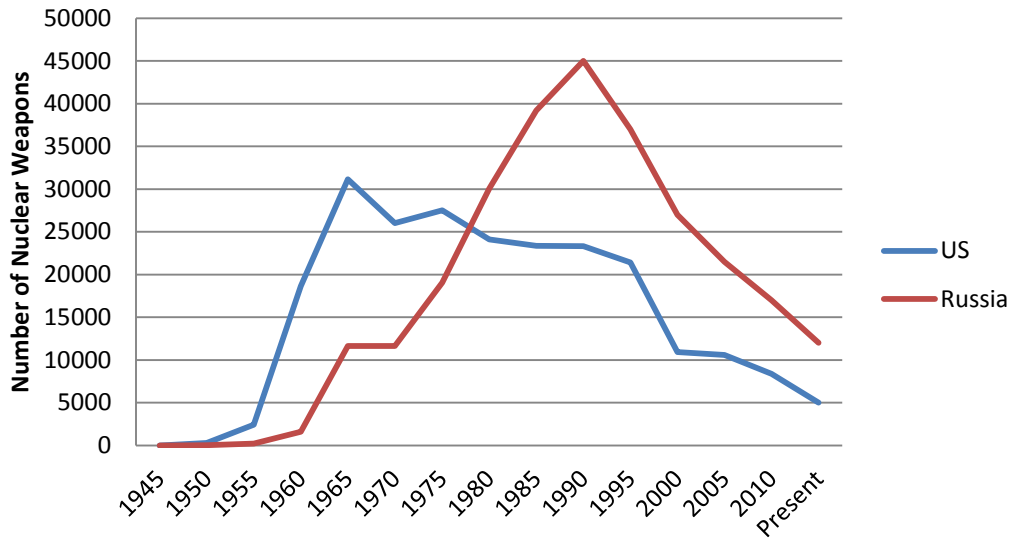
<sup>24</sup> Stephen J Cimbala, "Nuclear Arms Reductions, Abolition And Nonproliferation: What's Ideal, What's Possible, What's Problematical?," *Journal Of Slavic Military Studies* 22, no. 3 (2009): 336.

<sup>25</sup> Ibid.

<sup>26</sup> Robert S. Norris and Hans M. Kristensen, "Global Nuclear Weapons Inventories, 1945-2010," *Bulletin of the Atomic Scientists* 66, no. 4 (2010): 77.

<sup>27</sup> Ibid., 78.

### Nuclear Stockpiles 1945-2010



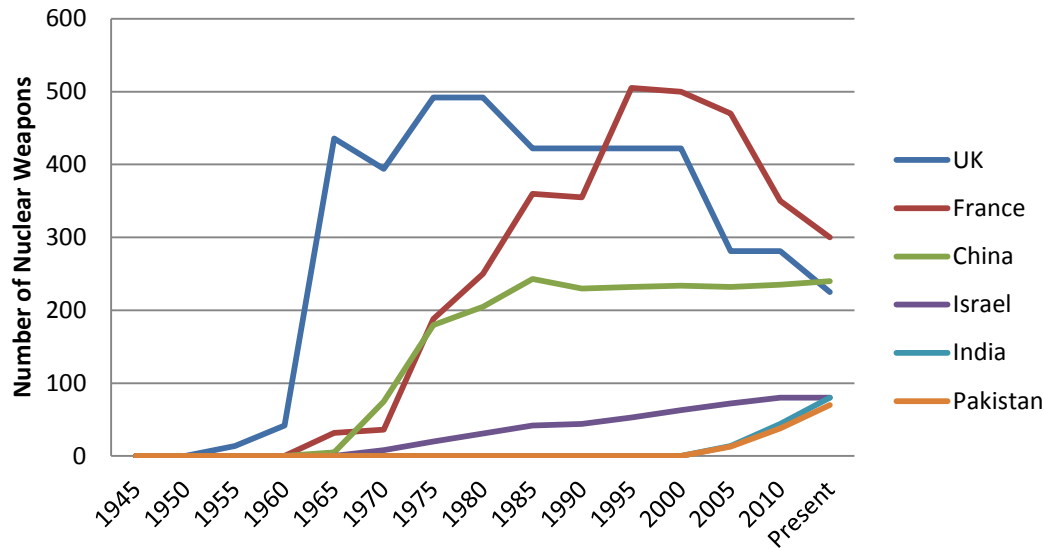
\*Information obtained from “Global Nuclear Weapons Inventories, 1945-2010”

It is important to note that these numbers reflect the total number of nuclear weapons, not the “operational” or “strategic” numbers. From a military standpoint, a nuclear state that possesses “strategic” weapons has the ability not only to attack, but to do so on a long-range (intercontinental) scale. As noted above, the total numbers of “operational” nuclear weapons in 2010 for the US and Russia are estimated at 2,468 and 4,650, respectively. The total numbers of “strategic” nuclear weapons in 2010 for the U.S. and Russia are estimated at 1,968 and 2,600.<sup>28</sup>

The graph below depicts the nuclear stockpiles of the other six nuclear powers. North Korea is not included, since information on the size of its arsenal is speculative. As with the U.S.-Russia line graph, the points on the graph are at five-year intervals beginning at 1945 and ending at 2010.

<sup>28</sup> Ibid., 77-83.

## Nuclear Stockpiles 1945-2010



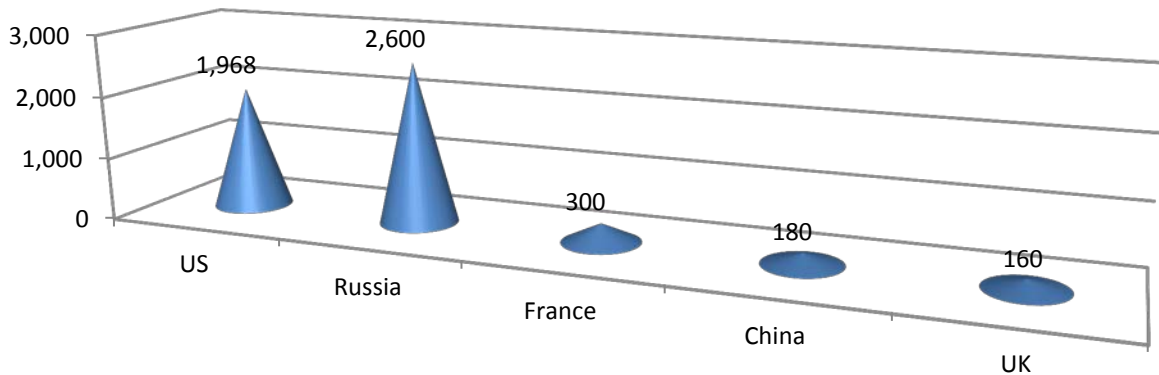
\*Information obtained from “Global Nuclear Inventories, 1945-2010”

Immediately notable on this graph is the difference in scale when compared to that of the U.S.-Russian graph—it counts missiles in hundreds as opposed to tens of thousands. Compared to the US and Russian arsenals, these numbers are not impressive. Nevertheless, an analysis of strength among the nuclear powers is critical to developing U.S. strategy for non-proliferation.

Narrowing down exactly which states have “strategic-operational” arsenals identifies those which pose a genuine threat to the US. North Korea, India, Pakistan, and Israel have no “operational” warheads, let alone “strategic” ones; the conventional threat from them is, for the time being, minimal.<sup>29</sup> France and Britain have “strategic-operational” arsenals of approximately 300 and 160, but, since both are political allies of the U.S., the concern is negligible. China’s arsenal is an estimated 180 “strategic-operational” nuclear warheads. The threat from China, however, is arguably mitigated by the fact that any attack on China’s part would be met by a US counter-attack that would destroy the Asian nation—the principle of mutually assured destruction. Looking at only the “strategic-operational” inventory, it is not difficult to see where the greatest conventional threat to U.S. national security lies. The graphic below helps illustrate this point.

<sup>29</sup> Ibid

## 2010 Number of "Strategic-Operational" Nuclear Weapons



\*Information obtained from "Global Nuclear Weapons Inventories, 1945-2010"

Without a doubt, the two nuclear powers that hold the largest "strategic-operational" capacity are the Russia and the US. In view of these differing nuclear stockpiles, it is clear that any state that goes head to head in a nuclear stand-off with the U.S. or Russia will assure its own destruction at the hands of either of the superpowers. An analysis of the nine nuclear states and their capabilities plainly indicates the necessity of the U.S. and Russia as leaders in any non-proliferation effort.

It is helpful to look at the 1970 Non-Proliferation Treaty (NPT) when analyzing the intentions of the world's nuclear states. The agreement between the signatories of the NPT is the "elimination of nuclear weapons through the commitment by non-nuclear-weapons states not to acquire nuclear weapons and the commitment by five nuclear-weapons states to pursue nuclear disarmament." The four nuclear powers that are not parties to the NPT are India, Israel, North Korea and Pakistan, and their nuclear stockpiles are therefore likely to increase.<sup>30</sup> Regardless, even if these states continue increasing their nuclear arsenals at their current rate, they are unlikely to reach US-Russia levels for decades.<sup>31</sup>

Taking a closer look at the positions of the nuclear states that are not a party to the NPT will help to better understand any dangers they might pose. Israel has had a policy of non-disclosure, but it is generally believed that it has an arsenal of at least 60 warheads. Israel's justification for this non-disclosure is that if Israel went public about its nuclear weapons, more pressure would fall on the Arab states to obtain their own. India has declared a policy of "no-first-use," but Pakistan has remained silent on the issue.<sup>32</sup> North Korea claims that it has nuclear weapons but has not provided evidence to support that claim. North Korea was originally a part of the NPT but has withdrawn from it in recent years. While the situations of the non-parties to the NPT appear troubling, there is little to suggest an imminent threat from any of them.

<sup>30</sup> "Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms" *The Weapons of Mass Destruction Commission*, last modified 2006, [http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument\\_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons\\_of\\_Terror.pdf](http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons_of_Terror.pdf)

<sup>31</sup> Robert S. Norris and Hans M. Kristensen, "Global Nuclear Weapons Inventories, 1945-2010," *Bulletin of the Atomic Scientists* 66, no. 4 (2010): 77

<sup>32</sup> *Ibid.*



### *The Terrorist Threat*

The terrorist attacks carried out on Sept. 11, 2001, changed the way Americans view international law and the relationships between states. Traditionally, states were the principle actors driving foreign policy and international law. Although this is still generally true, many argue that the relationship between citizen, states, and non-state actors has changed significantly. Amos N. Guiora writes, in “Fundamentals of Counterterrorism”, “In this new world order, non-state actors [terrorists] have become as capable of exacting change in international relations and domestic politics as an actual nation-state”<sup>33</sup> This is an important factor to consider when, in addition to nation-states pursuing nuclear weapons programs, terrorists, who are much harder to control and far less predictable, also have the potential to acquire nuclear materials.

Theft of nuclear materials is a major security concern, because terrorists need not necessarily steal fissile materials themselves. Well-financed terrorist organizations can simply buy radioactive materials from criminals who are willing to steal it. In 1995, the International Atomic Energy Association established the Incident and Trafficking Database (ITDB) to monitor and record reported incidents of illicit trafficking and unauthorized activities and events involving nuclear or radioactive material.<sup>34</sup> There are 125 states that actively participate in this program. According to the ITDB’s report, “Incident and Trafficking Database: Incidents of nuclear and other radioactive material out of regulatory control”;

From January 1993 to December, 2013, a total of 2477 incidents were reported to the ITDB by participating States and some non-participating States. Of the 2477 confirmed incidents, 424 involved unauthorized possession and related criminal activities. Incidents included in this category involved illegal possession, movement or attempts to illegally trade in or use nuclear material or radioactive sources. Sixteen incidents in this category involved high enriched uranium (HEU) or plutonium. There were 664 incidents reported that involved the theft or loss of nuclear or other radioactive material and a total of 1337 cases involving other unauthorized activities, including the unauthorized disposal of radioactive materials or discovery of uncontrolled sources. During 2013, 146 incidents were confirmed to the ITDB. Of these, 6 involved possession and related criminal activities, 47 involved theft or loss and 95 involved other unauthorized activities. There were also five incidents involving IAEA Category 1-3 radioactive sources, four of which were thefts<sup>35</sup>

There is clearly an international black market for fissile materials. According to Lyudmila Zaitseva in “Nuclear Trafficking: 20 Years in Review”, the expectation of profit is the major motivation for stealing radioactive material in the from the former Soviet Union. Zaitseva’s study compared information from the incidents reported in the US with incidents reported in Russia. Between January 2000 and December 2009, 144 illicit trafficking cases involving radioactive material were recorded in the US while 125 were recorded in Russia. Despite Russia’s lower total, it is noteworthy that only two out of the 144 cases in the US were profit-motivated, while 41 of the 125 cases in Russia were. The other cases mainly involved avoiding high disposal fees for nuclear waste.<sup>36</sup> It seems obvious that the reason for this

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<sup>33</sup> Amos N. Guiora, *Fundamentals of Counterterrorism* (New York: Aspen, 2008 ), 123.

<sup>34</sup> International Atomic Energy Agency. Incident and Trafficking Database, *Incidents of Nuclear and Other Radioactive Material out of Regulatory Control.2013 Fact Book*, last modified 2013, <http://www-ns.iaea.org/downloads/security/itdb-fact-sheet.pdf>.

<sup>35</sup> Ibid.

<sup>36</sup> Lyudmila Zaitseva, “Nuclear Trafficking: 20 Years in Review,” (presentation, WorldFuture Conference, Boston, MA, July 8-10, 2010).

difference between the number of profit-motivated incidents in the US and Russia is the existence of a black market for radioactive material in the former Soviet Union.

Moscow's interest in keeping fissile materials out of the hands of terrorists is the same as Washington's. The problem is that Russia's nuclear facilities do not have the proper security protections in place and that there are thousands of nuclear weapons and several hundred thousand pounds of weapons-grade fissile material scattered across its territories. Most troubling is the fact that Russia does not have a national or even site-specific inventory system for managing and accounting for its fissile material.<sup>37</sup> Graham T. Allison, Cote R. Owen Jr., and Richard A. Falkenrath in "Avoiding Nuclear Anarchy", describe some more specific incidents that have occurred:

An employee stole approximately 3.7 pounds of HEU from Luch Scientific Production Association at Podolsk, Russia, in mid-1992. A captain in the Russian Navy stole approximately 10 pounds of HEU from a submarine fuel storage facility in Murmansk in November 1993. German police accidentally discovered 5.6 grams of super-grade plutonium in the garage of a suspected counterfeiter in Tengen, Germany, in May 1994. In June 1994, Bavarian police in Landshut seized 0.8 grams of HEU in a sting operation. A sting operation also resulted in the seizure of almost a pound of near-weapons-grade plutonium at the Munich airport in August 1994. And approximately six pounds of HEU were seized in Prague in December 1994.<sup>38</sup>

It seems only reasonable to suggest that the material involved in these European episodes originated in the former Soviet Union. These examples provide clear indication that there are legitimate security concerns with Russia's inventory system. Particularly disturbing is that fact that insider threats—as in the case with the Navy Captain—are a major concern in Russia. A bad economy, high unemployment rates, and access to fissile materials—which sold on the black market could make an otherwise poor individual wealthy—make for a very dangerous combination and are a serious international concern. Additionally, as noted earlier, once this material is acquired, the information needed to design a working nuclear device or "dirty bomb" is publically available and the devices themselves are considered to be relatively easy to make.<sup>39</sup> The risk associated with Russia's unsecured fissile materials falling into terrorist hands far outweighs or, at least, equals the risk of conventional nuclear war with another state, which, in light of the principle of mutually assured destruction, seems unlikely.

An additional concern involves Russia's nuclear scientists being unemployed. In the wake of the Cold War the ensuing financial collapse of Russia, scientists who possessed the knowledge needed to create nuclear weapons had increased incentives to find employment in other states. The fear was, and still is, that these scientists will begin to emigrate to other, potentially hostile governments or terrorist organizations, which are willing to pay for their expertise. Many scientists from the former Soviet Union survived on incomes from government funding; when that money dried up after the collapse, many of these scientists could not support themselves or their families. In response, the U.S. provided assistance to help continue funding

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<sup>37</sup> Graham T. Allison, Owen R. Jr Coté, and Richard A. Falkenrath, "Avoiding Nuclear Anarchy." *Washington Quarterly* 20, no. 3 (1997): 185-198.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

them, with the hope that they would remain inside Russia and pursue peaceful nuclear technology programs.<sup>40</sup>

Deborah Y. Ball and Theodore P. Gerber conducted a survey of 602 Russian scientists to assess the risks of the so-called brain drain in Russia. They discuss their findings in the spring 2005 issue of *International Security* in their article “Russian Scientists and Rogue States” and draw two important conclusions: first, that “... [R]oughly 20 percent of Russian physicists, chemists, and biologists say they would consider working in Iran, Iraq, North Korea, or Syria”; and secondly, that U.S. grant programs funding these scientists “significantly reduce the likelihood that Russian scientists would consider working in such countries.”<sup>41</sup> If monetary incentives will keep Russian scientists in Russia, freeing up some of the U.S. military budget currently tied to missile defense research and directing it to these grant programs could have a significant impact on mitigating the risk of defection by Russia’s scientists.

Combating the threat of nuclear terrorism is essential to the security of both the U.S. and Russia and offers another opportunity to build a partnership and strengthen relations. There are many benefits to both states that would come from building a strong partnership against terrorists. P.T. Saunders in *The US And Russia After Iraq* writes that, “This [relationship] goes far beyond securing Russia’s ‘loose nukes’ (and ‘loose brains’); many so-called rogue states and other would-be proliferators are former Soviet client states where Russia has experience, established contacts, unique sources of information, and political leverage.”<sup>42</sup> The intelligence and resources that Moscow can provide to Washington could make investing in a US-Russia partnership exceptionally worthwhile. Successful collaboration is also likely to build trust that will extend to other issues, such as arms reductions and missile defense technology.

### *Treaties*

International treaties are a good indication as to the state of the relationship between two or more countries. Because treaties provide additional opportunity to strengthen relationships, they are an important tool in the fight for non-proliferation. The treaty that is considered the bedrock of global non-proliferation is the aforementioned Non-Proliferation Treaty (NPT) of 1970. The agreement between the signatories of the NPT is the “elimination of nuclear weapons through the commitment by non-nuclear-weapons states not to acquire nuclear weapons and the commitment by five nuclear-weapons states to pursue nuclear disarmament.” This treaty is accepted almost globally, with more than 120 signatories worldwide. The four countries notably not parties to the treaty are the world’s youngest nuclear powers: India, Israel, North Korea, and Pakistan.<sup>43</sup> That these four countries occupy this resistant stance only reinforces the need for a collaborative effort from Russia and the U.S.

The most recent treaty involving the U.S. and Russia specifically is the “Treaty on the Non-Proliferation of Nuclear Weapons of 2010”, otherwise known as New START. New START specifies limits on technology, verification measures, and inspections. Article II of New START is among the most important stipulations of the treaty: it specifies that, “Each party shall

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<sup>40</sup> Deborah Yarsike Ball and Theodore P. Gerber, “Russian Scientists and Rogue States: Does Western Assistance Reduce the Proliferation Threat?” *International Security* 29, no. 4 (2005): 50.

<sup>41</sup> *Ibid.*, 51

<sup>42</sup> Paul Saunders, “The U.S. And Russia After Iraq.” *Policy Review* 119, no. 1 (2003): 37.

<sup>43</sup> Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms,” *The Weapons of Mass Destruction Commission*, last modified 2006, [http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument\\_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons\\_of\\_Terror.pdf](http://mercury.ethz.ch/serviceengine/Files/ISN/26614/ipublicationdocument_singledocument/ea0a6488-ddb4-471e-befc-2f0c7068adb9/en/Weapons_of_Terror.pdf)

reduce and limit its ICBMs and ICBM launchers, SLBMs [Submarine Launched Ballistic Missiles] and launchers, heavy bombers, ICBM warheads, SLBM warheads, and heavy bomber nuclear armaments.”<sup>44</sup> Considering the importance of the U.S. and Russia setting a good example for other nuclear and non-nuclear weapons states, the seven-year plan under Article II to reduce strategic arms further is a vital part of New START.

Verification methods and inspection standards are other areas in New START which the US and Russia have agreed upon, thereby setting an example for other states. Article X specifies that each party has the right to verify the compliance to the provisions contained within the treaty and Article XI specifies the right to verify with inspections listing two types; type I and type II. Type I inspections refer are those conducted on ICBM bases, submarine bases, and air bases in order to confirm compliance with the provisions listed in Article II. Type II inspections are those conducted on facilities that house, or have housed, non-deployed offensive nuclear weapons.<sup>45</sup> These provisions within New START provide transparency and provide a basis for a greater trust to be built between the U.S. and Russia. Below is a joint statement made by US President Barak Obama and Russian President Vladimir V. Putin reaffirming their commitment to the New START Treaty and non-proliferation in 2012:

Nuclear arms control and non-proliferation remain a special responsibility for the United States and Russia as the two states with the world’s largest nuclear weapons arsenals. We reiterate our strong support for the Treaty on the Non-Proliferation of Nuclear Weapons and our shared goal of universal adherence to and compliance with that Treaty and the IAEA’s comprehensive safeguards, consistent with the Treaty’s Article II, and with the Additional Protocol.<sup>46</sup>

This renewed commitment to reducing nuclear arms and delivery systems and to increasing transparency between the US and Russia is an excellent start, but the issue of BMD systems still needs to be addressed if any lasting relationship is to be built. These BMD systems seriously jeopardize positive relations between the U.S. and Russia, unnecessarily escalating tensions during a time when cooperation is most needed. New START, however, is definitely a step in the right direction. Stephen J. Cimbala writes in “Nuclear Arms Reductions After New START: Incremental or Transformative” that,

The conclusion of New START ... provides symbolic benefits for Russia, by treating Russia as an equal negotiating partner with the United States for purposes of establishing a hierarchy of nuclear weapons states. So established, Russia has additional cover to play at the head of the table among G-8 and G-20 major powers, despite its insufficiencies in non-nuclear forces.<sup>47</sup>

Cimbala’s point is well taken. The New START Treaty could indeed be a much needed bridge across the gap in U.S. and Russian relations. Perhaps most importantly, although New START falls short of dealing with the U.S. pursuance of BMD systems, it allows for an open

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<sup>44</sup> “Treaty Between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms,” *United Nations*, last modified April 8, 2010, <http://www.state.gov/documents/organization/140035.pdf>

<sup>45</sup> Ibid.

<sup>46</sup> Barack Obama. "Joint Statement By President Barack Obama and President Vladimir V. Putin of Russia," Daily Compilation of Presidential Documents, last modified June 18, 2012, <http://www.gpo.gov/fdsys/pkg/DCPD-201200491/pdf/DCPD-201200491.pdf>.

<sup>47</sup> S.J. Cimbala, "Nuclear Arms Reductions After New START: Incremental Or Transformative?," *Journal Of Slavic Military Studies* 24, no. 1 (2011): 9.

dialogue and the potential to revisit the matter under Article XV, which specifies the right of each party to propose amendments.<sup>48</sup>

### *Solutions*

Given the preceding discussion of the complex issues at hand, the means by which the US and Russia should move forward seem clear. The most immediate threat to international security comes from the “loose nukes” and fissile material distributed widely throughout the former Soviet Union, which, as has been amply shown, are vulnerable to theft by or for terrorists, who will attempt to acquire this material in their ongoing efforts to carry out a nuclear terror attack. The US and Russia should therefore create a joint military task force, comprised of US and Russian military leaders, at the head of a coalition of US and Russian forces, whose sole purpose is to combat the worldwide threat to nuclear stability. Creating a US-Russian coalition will send a clear message to terrorists that the two nuclear superpowers are united, organized, and strong. Additionally, bilateral leadership of the task force will strengthen the relationship between the two countries and provide a solid foundation for diplomatic growth.

Due to the fact that terrorists operate in entirely unconventional terms, eschewing diplomacy, conventions of war, and official state borders, combating terrorism has led to the development of highly specialized military operations. Terrorists often live among the population of the country in which they are located and operate without a localized central command. Most terror networks rely on independent cells and therefore cannot be fought conventionally. A crucial component of the joint coalition would be an anti-terrorism force devoted to preventing terrorist cells from obtaining fissile materials.

Another key unit that would be necessary in a successful US-Russian coalition would be a highly trained force of security experts, comprised of both fixed and mobile teams. The focus of this all-important unit in the coalition would be defense, rather than offense, in that its primary mission would be securing and protecting Russian nuclear stockpiles and fissile material storage facilities.

Fixed security would involve securing each compound with a highly trained security team that would control all ingress and egress access points, conduct foot and vehicle patrols of the compound, establish strict identification protocols, conduct vehicle and bag inspections, stand watch at designated posts, conduct video surveillance of the compound and investigate all incidents that take place in and around the compound. Mobile Security Forces (MSF) would specialize in assessing the strengths and weaknesses of a given area, moving into that area and securing it, and protecting whatever asset is located in that area. MSF would be an excellent unit to utilize for high-risk nuclear facilities that have no permanent security force yet established or to protect nuclear assets while being transported.

In addition, Random Anti-terrorism Measures (RAMs) could be used by both security teams to further deter terrorists or would-be thieves. RAMs are designed to make a security force appear unpredictable. For instance, in addition to normal security operations, the Watch Commander of a security force team may choose to post a sentry at a new location and outfit the officer with additional weaponry, such as the US Navy’s M-60 machine gun. This is designed to confuse and deter any person that may be conducting surveillance on a security team, because the RAM is not anticipated and its use is unpredictable. Random I.D. checkpoints or personal,

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<sup>48</sup> “Treaty Between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms,” *United Nations*, last modified April 8, 2010, <http://www.state.gov/documents/organization/140035.pdf>

vehicle, and bag inspections can also be useful security tactics that can be employed by the section's Watch Commander.

A force such as this already exists within each of the US military branches. The US Navy, for example, has a force of over 10,000 Masters at Arms, who are some of the world's most highly trained security professionals with responsibilities that include nuclear asset protection, fixed and mobile security, river and harbor patrol, criminal investigations, and detainee operations.<sup>49</sup> Each US military branch has a similar security force to the Navy Master at Arms; these forces grew dramatically after the attack on 9/11 with a primary mission of anti-terrorism and force protection. Utilizing a number of these highly trained officers will demonstrate US commitment to global nuclear security; establishing this unit within the coalition will significantly decrease the risk of theft due to inadequate security at storage facilities.

As previously stated, current US missile defense systems are costly and largely ineffective. Expanding the current US ballistic missile defense system should be abandoned in order to free up its budget of \$9 billion a year, which can then be diverted to fund operations of the US-Russia Joint Coalition for Nuclear Stability (JCNS), which should be structured to combat several key areas of concern, each unit specializing in specific tasks, such as counterterrorism, intelligence, and fixed and mobile security. A US-Russia JCNS would certainly outweigh the need for any BMD system in the U.S. because such a partnership would be specifically targeting the most significant threats—terrorism and nuclear proliferation.

The other nuclear states could play a crucial role in this US-Russia JCNS. Participation should be encouraged by the US and Russia and could be structured in a way that allows the other nuclear states to send military advisors in addition to their own team of experts in counterterrorism, security, and intelligence. A unified joint coalition, led by the US and Russia, which includes the other nuclear and non-nuclear states would significantly increase intelligence sharing and security in the region as well as discourage proliferation and theft.

Once the US-Russia JCNS is implemented, the next step will be to inventory all fissile materials in the former Soviet Union and to tag each weapon or container with a GPS mechanism that the US and Russia could monitor at a joint information center overseen by members of the joint task force. This cooperative measure would establish a solid structure by which to manage and protect the world supply of fissile materials and weapons. Once these initial steps are complete, the focus of the task force can shift to global phased reductions of all nuclear weapons states, as well as enforcing the zero tolerance for proliferation by new states that was established in the NPT.

Establishing a treaty among the nine nuclear powers that creates a match-based reduction system will be a logical extension of the US-Russia JCNS and the NPT. Phased reductions based on percentages may be a good place to start. The chart below illustrates a system based on annual phased 10% reductions in arsenals across the board for all the nuclear powers, which would cut the entire world arsenal of weapons in half by 2020:

10% Phased Reductions	United States	Russia	United Kingdom	France	China	Pakistan	India	Israel	North Korea
2014	5,000	12,000	240	300	225	70	80	80	1
2015	4,500	10,800	216	270	202	63	72	72	1
2016	4,050	9,720	194	243	182	57	65	65	1

<sup>49</sup> I served active duty in the U.S. Navy as a Master at Arms between 2003 and 2008 and performed the operations delineated above.

2017	3,645	8,748	175	219	164	51	58	58	1
2018	3,280	7,873	157	197	148	46	52	52	1
2019	2,952	7,086	141	177	133	41	47	47	1
2020	2,657	6,377	127	159	120	37	42	42	1

\*Numbers obtained from “Global Nuclear Inventories, 1945-2010”

States that do not follow a policy of non-proliferation should be held accountable and punished if they fail to comply. Economic sanctions have been shown to be effective against states unwilling to cooperate. Military action against states that are uncooperative would be a last resort; it would, however, be difficult for the other nuclear states to ignore requests to reduce nuclear stockpiles from a US-Russia task force when they see a successful coalition in place. Additionally, creating a special-forces unit within the joint coalition that specializes in military take-over of nuclear compounds in states ignoring economic sanctions would send a powerful message to non-nuclear states that going nuclear may not be worth the effort. The use of military force to prevent nuclear proliferation is nothing new: In 2009, the US and Israel launched a cyber-attack on Iran’s nuclear facilities which destroyed its equipment and seriously damaged their nuclear program.<sup>50</sup> Israel attacked Iraq’s reactors in 1981 to prevent them from obtaining nuclear weapons as well. Iraq was subject to a subsequent attack by a United Nations coalition in 1991 and its remaining nuclear capabilities were destroyed shortly thereafter under IAEA supervision.<sup>51</sup> Certain political realities may make it difficult to use the military option and each situation should be carefully planned out. Russia, for example, is less likely to pursue any military action against Iran because of the economic ties that exist between the two states. Any Russian military intervention in Iran is sure to damage economic relations between the two states. It is logical to presume then that in some military operations, going it alone and not utilizing the JCNS may be necessary for both US and Russia interests to be protected.

The US and Russia have engaged in numerous successful joint military training operations with each other. The three most relevant examples include a “Nuclear Security Exercise” in 2013, a “Combating Terrorism Sub-working Group” in 2012, and a “Practice Nuclear Security Exercise” in 2011. The focus of each one of these joint exercises was to strengthen the military relationship between the two states and to serve as a forum to bilateral discussions of terrorism and nuclear security.<sup>52</sup> Although these operations were only training exercises, they are clear indicators of the potential for a long term JCNS relationship between the US and Russia. Continuing these types of exercises can help to strengthen the military relationship between the U.S. and Russia and provides an excellent platform to use in building a lasting JCNS partnership.

### **Conclusion**

The issues associated with the US-Russian relationship and nuclear weapons are complex to say the least. Issues such as the installation of missile defense systems, rogue states pursuing

<sup>50</sup> Shaun Waterman, “U.S.-Israeli Cyber Attack on Iran Was ‘Act of Force,’ NATO Study Found”. *The Washington Times*, last modified March 24, 2013. <http://www.washingtontimes.com/news/2013/mar/24/us-israeli-cyberattack-on-iran-was-act-of-force-na/?page=all>.

<sup>51</sup> Robert S. Norris and Hans M. Kristensen, “Global Nuclear Weapons Inventories, 1945-2010,” *Bulletin of the Atomic Scientists* 66, no. 4 (2010): 77.

<sup>52</sup> US Department of State, “Military Cooperation: Past Events,” last modified May 1, 2014, <http://www.state.gov/p/eur/ci/rs/usrussiabilat/c38712.htm>

nuclear weapons technology, and terrorism are all significant causes of concern for the whole of humanity. Given that both the US and Russia agree that nuclear war is not a reasonable option for anyone, there seems to be at least some logic to reducing and eliminating the current arsenals and preventing new states or terrorists from acquiring them. The bad news is that, although there is agreement between the US and Russia on that general conclusion, the fact remains that there are still tens of thousands of nuclear warheads on the planet, and nobody quite knows what to do about them. We would be wise to heed the words of President John F. Kennedy's State of the Union address in 1962:

Today, every inhabitant of this planet must contemplate the day when this planet may no longer be habitable. Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident or miscalculation or by madness. The weapons of war must be abolished before they abolish us.<sup>53</sup>

Implementing the US-Russia Joint Coalition for Nuclear Stability will significantly reduce the threat of terrorists obtaining fissile material, strengthen relations between the US and Russia, provide a platform for successful reduction of global stockpiles of nuclear weapons, serve as a warning to other nuclear states or would-be proliferators, and show international strength and leadership for others to follow. If the US and Russia unite on this front, they can be a powerful force to rid the world of nuclear weapons. Only the spirited cooperation of the nuclear superpowers can effectively orchestrate such a massive undertaking.

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<sup>53</sup> "JFK on Nuclear Weapons and Non-Proliferation" *Proliferation Analysis*, last modified November 17, 2003. <http://carnegieendowment.org/2003/11/17/jfk-on-nuclear-weapons-and-non-proliferation/3zcu>.



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