

CHAPTER 2

Nuclear Terrorism: The Sum of All Fears

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John Lauder

Where does nuclear terrorism fit in the context of all the other threats and potential calamities about which we have to worry? How significant is the prospect of nuclear terrorism compared to the impact and likelihood of other concerns about weapons of mass destruction and compared to the full range of other national security problems? Answering such questions would help provide insight about whether the prospect of nuclear terrorism is overhyped or insufficiently addressed. The reflections below suggest that concerns about nuclear terrorism have waxed and waned over the past few decades. The strength of the concerns has often been driven by non-nuclear factors and the rise and fall in other priorities rather than direct evidence related to the prospect of nuclear terrorism itself.

To assess nuclear terrorism within the broader context of other threats, let us look back to the 1990s.¹ Then, the world was dealing with the consequences of the Soviet Union's collapse. It was a failed state with enormous capability and expertise in weapons of mass destruction (WMD). There was great and appropriate concern about the former Soviet scientists and engineers who had detailed knowledge of how to build and employ these weapons—nuclear, chemical, and biological. What was going to happen to the weapons and the precursor material? Was the expertise and material going to bleed out to other states and to non-state actors?

These concerns led to a fertile era of nonproliferation and counterproliferation initiatives, actions, and programs to assist the former Soviet states on dismantling and repurposing many of their WMD facilities and to provide support for redirecting their WMD experts to more benign activities. Traditional arms control agreements played a role, as did broad programs such as the Cooperative Threat Reduction Program and ad hoc efforts such as Project Sapphire, which moved weapons-grade, highly enriched uranium from Kazakhstan to Oak Ridge National Laboratory in the United States.

The U.S. government (USG) reorganized itself as well, to bring greater focus and resources to nonproliferation challenges. One of those reorganizations was the creation of the Defense Threat Reduction Agency, which brought together several elements of the Department of Defense to focus on the WMD problem.

1. For analysis of perceptions of the nuclear terrorism threat going back to 1946, see “Appendix: Evolving Perceptions of the Threat of Nuclear Terrorism,” in Matthew Bunn, Martin B. Malin, Nickolas Roth, & William H. Tobey, *Preventing Nuclear Terrorism: Continuous Improvement or Dangerous Decline*, Cambridge, MA: Belfer Center for Science and International Affairs, March 2016.

Another adjustment was in the intelligence community. We created a larger nonproliferation center that brought more analysts in from across the community to focus on WMD issues, related technology, and transfer networks. One of the challenges that we confronted in the late 1990s as we implemented these reorganizations was the tremendous scope of issues for the new organizations to address. How should these organizations, and the United States government as a whole, prioritize what was on our plate?

It was a particular challenge that engaged me, as the Director of the Intelligence Community's Nonproliferation Center at the time, and equally confronted Dr. Jay Davis, who was the first director of the Defense Threat Reduction Agency. Jay and I would meet regularly to coordinate. During one of those meetings, he reminded me of the title of the 1991 Tom Clancy novel, *The Sum of All Fears*. Jay said we should rack and stack the sum of all our proliferation and WMD terrorism fears, and use that sum of our assessments to assign priorities and allocate scarce resources. This was a noble idea, but it was difficult to implement—largely because the range of threats was broad and perception of the threats was affected by so many factors inside and outside the government.

At about the time Jay and I were talking about the “sum of our fears,” somebody recommended to President Clinton a novel called *The Cobra Event*. The book was about a biological terrorist attack—and it had a profound effect on government priorities. The president read the book, recommended it to others in and outside the government, and asked what the government was doing to prevent such an attack.²

At about the same time, we realized that United Nations inspections after the first Gulf War had revealed that the USG had badly underestimated Iraqi biological weapons capabilities beforehand. This realization, combined with the president's interest, gave rise to a widespread understanding that the government was not paying enough attention to the prospects for the development and use of biological weapons. As a consequence, the government became very focused on biological threats as the most dangerous and likely form of WMD terrorism.

This is just one example of the external events that affect where WMD terrorism fits within national security priorities. The most dramatic were the terrorist actions on September 11, 2001 (9/11). Those attacks underscored that terrorists could create a tremendous catastrophe even without the use of WMD. At the same time, 9/11 raised the specter of ever more spectacular terrorist assaults that could possibly employ WMD.

In the wake of these concerns, there were renewed efforts to come up with the sum of all fears and prioritize the threats. One related analytical effort was the Defense Science Board (DSB) summer study of 2005 focused on Reducing Vulnerabilities to Weapons of Mass Destruction.³ We were only a few years removed from 9/11, and the study aimed to examine threats across the broad range of possible WMD attacks. Those of us on the study team considered state actors' use of WMD across the full modalities of chemical, biological, radiological, and nuclear. We addressed state-sponsored terrorism and the possibility that states might use WMD against the United States in non-conventional ways, such as special operations forces introducing a weapon into a city, rather than through a missile or air strike. We also looked at the possibility of non-state actors developing a crude WMD device, especially an improvised nuclear weapon.

2. Richard Preston, *The Cobra Event*, New York: Random House, 1998. Various sources have reported on President Clinton's reading of the book and his tasking of government agencies. See, for example, pp 223-226 in Judith Miller, Stephen Engelberg, and William Broad, *Germs: Biological Weapons and America's Secret War*, New York: Simon and Schuster, 2001.

3. Defense Science Board 2005 Summer Study, *Reducing Vulnerabilities to Weapons of Mass Destruction*, Washington, DC: Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics, 2007, available at <http://www.acq.osd.mil/dsb/reports/ADA471566.pdf>.

The study considered not just a single use, but examined what would happen if a series of attacks took place, or attackers combined different modalities of weaponry. Though we now focus much more on cyberterrorism, even then we asked questions such as: What if there was a cyber-attack that degraded our response capabilities at the same time someone introduced a nuclear weapon into Manhattan? What if somebody exploded a nuclear weapon in lower Manhattan and claimed to have another ready to use—how do you deal with that? Or what if they explode one device in Manhattan, one in DC, and say they have two more ready to use. What are those implications?

The other aspect striking about the timing of that Defense Science Board report was that Hurricane Katrina happened at the end of that summer. One focus of the study was to assess the ability of the U.S. government to do effective and well-coordinated consequence management in the wake of a truly catastrophic event. The study team had received a number of briefings from government agencies about how federal, state, tribal, and local governments would cooperate to respond to a catastrophe; that the right resources would be requested promptly, arrive on time, and be effectively employed.

There was much skepticism on the part of the study team that the necessary operational plans were in place. The team doubted there had been sufficient exercising and detailed planning on how to work together to respond to a catastrophe—how the handoffs would occur among local first responders, state resources, federal civilian agencies, and ultimately the U.S. military if required. Unfortunately, those concerns turned out to be well-placed when the response to Katrina exposed failings in planning and preparation for dealing with a catastrophe.

We looked at nuclear terrorism in the same context. In the course of the study, we came to focus on the bookend of, on one side, prevention—how do you stop an event from happening? On the other end was consequence management—how can you prepare to mitigate and recover? Using the bookend model, we examined how to address the whole range of possible chemical, biological, radiological, and nuclear attacks. For example, how could authorities better secure the materials terrorists might be able to use, such as radiological sources in hospitals? How could the resources and planning of the public health system be improved to deal with both major epidemics and possible biological attacks?

In the most stressing cases, such as the detonation of multiple nuclear weapons by a terrorist group or state actor, the burden would be on the prevention bookend. The consequences of such an attack could overwhelm response, even if well-planned and resourced beforehand. We were particularly worried that in addition to the sheer destruction and casualties, such a catastrophic attack would fundamentally weaken the U.S. economy and undermine confidence in government. What would be the economic impact of losing the financial centers of lower Manhattan to a nuclear attack, especially if other attacks also took place or were threatened? What would be the impact on democracy as we know it?

The concern was that economic and political upheavals following a nuclear attack in the United States would be much more severe and dramatic than 9/11. The public would demand moves toward a much more authoritarian state to deal with the consequences and the possibility of further attacks. These are the types of concerns that underscored the study's analysis of the potential consequences of a nuclear terrorist attack. Such an attack may not be likely, but the consequences would be so severe that actions are required to prevent it from happening.

Now, more than a decade after the DSB study, there are reasons to believe the risk of a nuclear terrorist attack is growing. Let me cite three sets of concerns.

First, time may not be on our side. As somebody who labored in nonproliferation and arms control for many years, our hopeful assumption was that time was on our side. We thought that all we had to do was keep the number of nuclear weapons states low, keep the WMD states in a set of interlocking arms control agreements to limit capabilities and worrisome actions, and over time we could deal with the fundamental security concerns that lead these states to want to have weapons of mass destruction in the first place. We could constrain their WMD programs until that time and then walk them back.

But it is not clear that time works for us in the world of non-state actors who could conduct terrorism using nuclear or other WMD weaponry. For over ten years in various presentations, I have been citing surveys of nonproliferation experts on the likelihood that a weapon of mass destruction would be used. One of those surveys was conducted in 2005 by Senator Richard Lugar, the former Chairman of the Senate Foreign Relations Committee. According to his survey of leading nonproliferation and national security experts, the risks of a WMD attack against a city or other target were judged to be substantial. The average response of the risk of a nuclear, chemical, or biological attack over ten years was about 30 percent. The average response to the risk of employment of a radiological device was about 40 percent.⁴

Should we be comforted or not that such attacks have not happened as the survey was done more than ten years ago? One can argue that counterproliferation and counterterrorism actions and programs are working. A more pessimistic assessment would be that we are living on borrowed time. No domestic WMD attack has happened in the last decade, and no WMD attacks have occurred overseas except for chemical weapons use in Syria. But maybe the survey's assessments were correct and greater WMD use is just right around the corner.

Second, opportunities for states and non-state actors to acquire and use WMD may be increasing. Technology and information relevant to the development of WMD, including at least crude nuclear weapons, are increasingly available. A few years ago, the Nuclear Threat Initiative (NTI) produced a video called *Last Best Chance*, which starred former Senator Fred Thompson as president of the United States. It depicted a fictional but plausible scenario for how terrorists could construct nuclear devices and introduce them into the United States. The intent of the video was in essence the same as the Defense Science Board's 2005 study: anticipate such terrorist use of a nuclear device, deconstruct the steps terrorists would have to take to do so, and act now to prevent those steps when they are still preventable.

How do you convince policymakers and the public that terrorist acquisition or creation of a nuclear device is plausible? That was one of the NTI's intents in producing *Last Best Chance*. One of the challenges when arguing for the plausibility of terrorist use of nuclear weapons is to make sure we are not providing a how-to guide for would-be terrorists. There is a fine line between providing a roadmap and providing enough warning to persuade federal, state, local, and international governments to take necessary preventive action.

For terrorist acquisition and use of nuclear weapons to succeed, there has to be an intersection of four types of individuals or groups. One group is the radicalized terrorists—the worst people who want bad things to happen. Then there are the technically savvy folks—those that know how to put a weapon together and employ it successfully. Third are the people who have access to weapons themselves or to nuclear explosive material. Finally, there are middlemen and networks that bring all this together. There is substantial evidence that these four groups, from time to time, intersect. In fact, there are signs of the demand and supply sides trying to come together through the middlemen.

4. Senator Richard Lugar, *The Lugar Survey on Proliferation Threats and Responses*, June 2005, available at <https://www.gwu.edu/~ccps/LugarSurvey.pdf>.

One of these indications was an article about ISIS's interest in red mercury. Red mercury is an alleged substance that purports to offer a shortcut for building advanced explosives, including nuclear weapons. As C.J. Chivers of *The New York Times* wrote in his article, "*The Doomsday Scam*:"

To approach the subject of red mercury is to journey into a comic-book universe, a zone where the stubborn facts of science give way to unverifiable claims, fantasy and outright magic, and where villains pursuing the dark promise of a mysterious weapon could be rushing headlong to the end of the world. This is all the more remarkable given the broad agreement among nonproliferation specialists that red mercury, at least as a chemical compound with explosive pop, does not exist.⁵

But ISIS is out there, using long-established Middle East smuggling networks, seeking red mercury. The more ISIS and others see scientific literature saying red mercury doesn't work, the more they are interested in it—they are sure the refutations are a disinformation campaign to turn them off of looking. The fact that a group like ISIS is out there trying to find red mercury, and reaching out to smugglers in their effort, provides a reason to worry. How long will it be before they stumble on material that is not a hoax, but useful in the construction of a weapon of mass destruction?

Third, there has been a decline in the urgency and the number of threat reduction programs that were flourishing in the 1990s. We had the last of the Nuclear Security Summits in March 2016. It happened with little attention outside the nonproliferation community; the Russians didn't even show up.

Former Senator Sam Nunn, the chief executive officer and co-chairman of the NTI, wrote in his foreword to the 2016 NTI Nuclear Security Index that there has been a slowdown in progress toward the goals set in the first Nuclear Security Summit in 2010. The NTI website and the Index's report cited a number of reasons. One is politics, both internationally and within the United States. Policymakers are diverted by other issues and are less concerned about nuclear terrorism. The report also noted the problems of bureaucratic inertia, lack of resources, and cultural issues.⁶

Nuclear terrorism may not be perceived as a near-term urgency, but the consequences of missing warning signs would be enormous. Prudent steps can be taken to assess the risk, even at a time of limited resources and other pressing priorities. We can assess how well the government is implementing recommendations like those of the Defense Science Board. Which recommendations have been implemented, which are still valid, which ones could still be done?

Another step is to identify the intersection points—like the middlemen alluded to earlier. We have to worry about chemical, biological, and nuclear attacks that differ greatly in likelihood, effects, and the type of expertise required. But if we focus on points of intersection, such as those middlemen and networks, the problem becomes more finite. The smuggling networks are known to each other. You can identify them; you can get inside them; you can disrupt them; you can turn them against each other. And you can learn all manner of useful information in the process.

There are other steps as well: strengthening intelligence, exercising consequence management for a catastrophic event, developing more effective attribution and deterrence policies, and being ever more vigilant

5. C.J. Chivers, "The Doomsday Scam," *New York Times Magazine*, November 19, 2015, available at http://www.nytimes.com/2015/11/22/magazine/the-doomsday-scam.html?_r=0.

6. Nuclear Threat Initiative, *Nuclear Security Index: Theft and Sabotage, Building a Framework for Assurance, Accountability, and Action*, Third Edition, January 2016, available at http://www.ntiindex.org/wp-content/uploads/2013/12/NTI_2016-Index_FINAL.pdf; and Bunn et al, *Preventing Nuclear Terrorism*, for further assessment of progress and gaps in nuclear security.

about reducing and safeguarding stockpiles and production of nuclear explosive material. The key is to remain focused on the problem of nuclear terrorism. Steps taken now are much more effective—and far less costly—than waiting for the attack.