Unit V

Assessing the Future WMD Threat

We conclude the volume with a collection of different perspectives about the future threat of terrorism involving weapons of mass destruction. First, Gregory Koblentz of George Mason University identifies three major schools of thought on the risk of CBRN terrorism: optimists, pessimists, and pragmatists. Although these three schools of thought draw on the same limited universe of data on CBRN terrorism, they arrive at strikingly different conclusions. Given the inherently subjective process of CBRN terrorism risk assessment, the second section of his article examines the role of cognitive biases in the risk assessment process, followed by some potential criticisms of this approach, and he concludes with some recommendations for improving CBRN terrorism risk assessments.

In the next article, Joshua Sinai (of Virginia Tech University's Research Center in Arlington) and James Forest (of the University of Massachusetts, Lowell) offer a different framework for analyzing the future of WMD terrorism using the concept of threat convergence. They note that a true appreciation of the WMD terror threat cannot be achieved by looking only at the intersection of terrorist group dynamics and WMD proliferation networks. Instead, a more complete analysis requires examining developments in a variety of threat vectors with particular focus on how and where these threats converge. In particular, there are trends in seven areas of concern that upon converging may elevate the threat of a WMD terrorist attack. These areas are 1) the proliferation of CBRN weapons, materials and knowledge; 2) terrorist ideologies, strategies, and organizational structure; 3) organized crime; 4) cybersecurity; 5) rogue and irresponsible states; 6) weak and failed states; and 7) the exploitation of democratic processes. After a brief review of evolving trends in each area, their discussion examines a number of factors that could accelerate (or constrain) convergence of these threat vectors in ways that have important implications for the future of WMD terrorism.

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Then Forrest Waller and Michael George of Science Applications International Corporation provide an analysis of four technological revolutions which have significant potential to produce effective, affordable weapons of mass destruction of entirely new kinds. First, while a computer network attack has the potential to undermine social stability, the public's sense of security, national prosperity, and confidence in government, they suggest that one form of information technology—artificial intelligence—could become the basis for a new kind of weapon of mass destruction if integrated with other weapon technologies to replace human decision-making. Specifically, a distributed "swarming" attack using robotic weapons with enough intelligence to distinguish between friend and foe, or to navigate precisely with external help, could become a basis for new kinds of WMD. Second, as described in greater detail earlier in this volume, developments in biotechnology have serious implications for new kinds of WMD. Third, nanotechnology also might produce discrete new kinds of weapons of mass destruction. Ongoing research in nanotechnology weaponry includes ultra-high explosive/ultra-incendiary devices, while others have demonstrated that nano-sized carbon particles can introduce respiratory distress and death, depending on the concentration of particles in the atmosphere and the duration of exposure. And fourth, research on new energy sources, driven by the desire to reduce reliance on fossil fuels, could lead to new forms of energy-related WMD. For example, nuclear isomer weapons—which do not use nuclear fission or fusion as the source of energy—could fill a large volume of space with lethal effects (kinetic energy, thermal energy, and gamma radiation). They conclude that we must expand our definition of the term "weapon of mass destruction" to account for new developments in these and other areas of technological research.

And the final chapter in the volume, co-authored by Adam Dolnik (of the University of Wollongong in Australia) and James Forest, offers yet another perspective on the future of WMD terrorism. They note that based on the historical record, the future of WMD terrorism can be characterized as a good news/bad news story. The good news is that there is very limited precedent to follow, and terrorist groups can study and learn from only a few "successful" attacks involving some form of chemical, biological, or radiological (but not yet nuclear) weapon. Further, as many chapters in this textbook have described, a great deal of effort and resources have been expended in order to improve the security of CBRN facilities and transportation, as well as to investigate and disrupt clandestine proliferation networks. Clearly, there are a small number of people in the world who want to carry out a WMD terrorist attack, and their intentions are not matched by capabilities. Meanwhile, there are far more people in the world who are trying hard to prevent WMD terrorism. However,

we must avoid the danger of becoming complacent or distracted from the potential threat of terrorists acquiring (even if by luck) and using a weapon of mass destruction.

Overall, the discussions and analyses provided in this volume paint a complex portrait of terrorists' motivations and capabilities for acquiring and using weapons of mass destruction, and our ability to stop them. While human nature would have us hoping for the best, there are thousands of government agencies and individuals worldwide who are preparing for the worst, and working incredibly hard to prevent the worst from happening. The purpose of this volume is, foremost, to help them be successful in this lifelong endeavor.

Second Edition

WEAPONS *of* MASS DESTRUCTION

and TERRORISM

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