Center for the Study of Weapons of Mass Destruction
National Defense University

2008 Annual Symposium
WMD Proliferation and Use:
Have We Been Effective, Lucky, or Overly Concerned?

Key Themes

This paper summarizes key themes that emerged from the National Defense University (NDU) Center for the Study of Weapons of Mass Destruction's eight annual symposium, WMD Proliferation and Use: Have We Been Effective, Lucky, or Overly Concerned?, *held at NDU on May 7-8, 2008. The views presented here do not necessarily reflect those of the National Defense University, the Department of Defense, or any other U.S. Government agency.*

Understanding our record in combating weapons of mass destruction requires a balanced perspective. There are rival explanations for why the United States has not encountered or suffered a major WMD attack by a state or non-state actor. For some, this is evidence that the threat has been overstated – "the dog that did not bite." For others, it is some combination of luck and a result of strategies and policies put in place over the last 15 years that have been effective in containing the threat. Contention over these two perspectives is almost inevitable when confronting "low probability / high consequence" challenges.

Those who view WMD dangers as exaggerated see the broader terrorism threat as overstated. They cite the arguments of some specialists that the jihadist phenomenon has evolved into something inherently self-limiting and decreasingly coherent as an instrument of transnational violence. Evidence of mounting criticism within the Islamic community of al-Qaida's extreme violence (especially against fellow Muslims) may deter al-Qaida from using WMD lest doing so irreparably alienate its key constituencies. They point to technical obstacles to mounting successful WMD attacks and argue that al-Qaida's objective is not to destroy the United States but to instill fear and generate an overreaction that will bleed the United States psychologically and economically. They suggest that unwarranted fear of WMD has validated this al-Qaida strategy, leading us into an unnecessary and costly war and diverting large sums into questionable initiatives in areas such as biodefense, nuclear detection, and transportation security. They see rogue states possessing or seeking WMD as strategically insignificant and/or deterrable at manageable cost. Overall, while WMD pose some threat, they are not a threat to our way of life or our existence as a society.

For those who believe that WMD do, in fact, represent a potentially existential threat, it is difficult to be overly concerned, probabilities notwithstanding. The stakes are so high that worst-case planning is a prudent response. However, one need not view the threat as existential to be gravely concerned, and one need not engage in worst case planning to make the case for meaningful action across many fronts. Enough is known about the interest of radical actors in

WMD and the potential consequences of well-executed attacks to warrant a significant response at all levels of government. Factor in troubling trends in areas such as nuclear energy, the life sciences, advanced chemistry, and proliferation networks, as well as questions about the resiliency of U.S. society should a major WMD attack occur, and it is difficult to argue that we are overly concerned with the WMD problem.

That is not to say that our efforts to prevent, deter, defeat, and respond to WMD threats are solely responsible for the absence of a major attack. We may have been more fortunate than effective in avoiding WMD use. The truth is we just do not know all the reasons certain events have not occurred. But common sense tells us that even if aspects of the threat may have been overstated, our policies and actions – imperfect as they may be – have had an impact. The challenge for decision makers is to assess continually which strategies, policies and capabilities can best contribute to continued success in combating WMD, and to balance needed investments against other essential national security requirements in a highly competitive budgetary environment.

Improving WMD intelligence remains a major challenge. Limitations in WMD intelligence are by now a well-studied problem. Even before the serious questions raised by the Iraq experience, there were long-standing concerns about the capabilities of the intelligence community to track WMD programs and identify required reforms. Our intelligence track record is mixed. There have been major successes (not always publicly acknowledged), and there are recognized oases of excellence in the intelligence community with respect to WMD collection, tradecraft, and analysis. There have also been significant failures and chronic dysfunctions stemming from a broad range of organizational, operational, and analytical shortfalls. Opinion appears divided over whether the most recent organizational innovations and process reforms better position the intelligence community to understand the WMD threat properly and anticipate the range of challenges that may emerge.

In key areas related to nuclear, biological, and chemical weapons, there continue to be large gaps in knowledge and understanding of both suspect programs and technology trends. Recently, the intelligence community began conducting "gap attacks" that will focus attention on the most serious and difficult of these intelligence deficits. It is important to have realistic expectations, however. Determined, adaptive proliferators skilled at deception and denial will find ways to conceal at least some of their activities from even a greatly improved WMD intelligence enterprise. To some degree, therefore, uncertainty will always outweigh certainty, and policy makers must accept that there are inherent limits to WMD intelligence. The Intelligence Community is challenged to improve its ability to convey uncertainty in ways that policy makers can understand and apply.

As it works to reduce uncertainty, the intelligence community must sharpen its focus on the "softer" elements of the proliferation problem – people, plans, and intentions. Far too much of the community's intellectual and financial resources remain targeted against the "harder" elements of facilities, technology, and systems. This is a legacy of the Cold War era that has diminished utility in the face of today's proliferation challenges. Additionally, the intelligence community must continue to transition from simply reporting on proliferation to sustained engagement in the proactive fight against WMD. Finally, intelligence organizations responsible

for setting strategic direction and coordinating community-wide efforts must continue to work closely with the operational communities to ensure that collection and analysis directly support planning and the execution of U.S. combating WMD missions.

We are still struggling to achieve unity of national effort. To a significant and troubling degree, our combating WMD efforts are not effectively integrated. This is not a new problem; it was recognized as early as a decade ago, and a principal goal of the strategy documents produced in the early years of the Bush administration was to lay a foundation for an effective national effort to address the entire WMD problem space. The numerous initiatives undertaken since that time have only reinforced the need for decision making, coordination, and organizational mechanisms that can accommodate new opportunities and new capacities for more aggressively confronting the threat. Despite some progress, there remains confusion concerning the conceptual, practical, and organizational relationships between nonproliferation, counterproliferation, counterterrorism generally, and counter-WMD terrorism specifically. These uncertainties make synchronization of strategies, plans, and operations more difficult and contribute to the creation of organizational stovepipes and unnecessary competition. Unless addressed by the national leadership, there is a danger this could become a long-term institutional problem.

The solution is not self-evident and requires serious study, but there is a sense in the combating WMD community that the White House structure needs to play a stronger role in motivating and enforcing greater unity of effort. This could involve reforming and strengthening the National Security Council and Homeland Security Council apparatus, or creating new structures within the Executive Office of the President. For example, there have been a number of proposals in recent years to establish a "czar" for combating WMD, nuclear terrorism, and related problems – an individual focused solely on this set of issues and empowered to develop and implement an end-to-end interagency architecture for policy, programs, and budgets. [1] Another possibility is to assign integration responsibility to a lead agency.

The Department of Defense has adopted the equivalent of a lead agency approach by naming United States Strategic Command (STRATCOM) lead combatant commander for combating WMD. Under this approach, progress has been made in integrating planning, operational, and programmatic activities, but institutionally this arrangement has yet to gain full traction in the Department. At the same time, organizations such as the Joint Staff and the Office of Secretary of Defense (OSD) have undergone organizational changes that have reduced their capacity to execute their traditional "integrate and synchronize" role. Generally, these organizational changes have sought to strengthen DoD capacities to wage the "long war" against terrorism and violent extremism.

The challenge for the U.S. Government is not simply to improve day-to-day planning and execution of combating WMD activities. Also needed is an improved capability to manage complex contingencies that involve nuclear, biological, and/or chemical weapons, in particular overseas contingencies where military, political, and other activities (e.g., intelligence, legal, humanitarian) must be tightly integrated in order to achieve national objectives. Such

[1] The *Implementing Recommendations of the 9/11 Commission Act of 2007*, which was signed into law on August 3, 2007, requires the White House to create such a "czar." As of June 2008, the Bush Administration had taken no steps to implement the law and was still studying the idea.

contingency operations might benefit, for example, from a capability to rapidly form WMD crisis planning action teams, and increased capacity by civilian agencies to deploy personnel and assets. Efforts that may emerge in the next few years to reform the interagency process should consider WMD contingencies.

Nuclear proliferation is becoming a more complex phenomenon, but the challenge we face is not so much "runaway proliferation" as "creeping proliferation" and increasing nuclear latency. In the forty years since the nuclear Nonproliferation Treaty (NPT) was signed, the international community's track record in managing the spread of nuclear weapons has been a good one overall. Today, there are considerably fewer states possessing nuclear weapons than many serious observers predicted or feared a few decades ago. However, we are entering a period of heightened uncertainty and risk as global nuclear aspirations appear to be on the rise – exemplified not only by determined proliferators such as North Korea and Iran but also by states seeking to keep the nuclear option open.

The near-universality of the NPT means that determined aspirants will need to pursue nuclear status while minimizing the transparency of their intent and actions. They will either engage in treaty-compliant behavior with the intent to break out of the Treaty at a later time, or undertake an illicit covert program and hope to conceal it from international inspectors and the world. Either way, these states are likely to proceed incrementally and circuitously, marrying technical activities that appear ambiguous to political strategies that buy time and undermine unified opposition. To varying degrees, Iran and North Korea exemplify this model of "creeping proliferation." Years of diplomatic effort intended to clarify intentions, activities, and capabilities have yielded limited and uncertain progress. The stakes in these cases are high not only because of the security challenges that will result from the emergence of *de facto* nuclear powers in Northeast and Southwest Asia, but also because it is essential to delegitimize this model of creeping proliferation. Failure to do so will place enormous strains on the nonproliferation regime.

One concern is that successful challenges to the normative system represented by the NPT regime will lead critical states that years ago made a strategic choice to remain non-nuclear – on the premise that additional nuclear states would not emerge – to reconsider that choice, with dramatic impact on the thinking of other nuclear abstainers. Japan is often cited as a prototype of such a state, one whose expectations about the effectiveness of non-proliferation norms have not fully been met.

Another concern is that failure to check North Korea and Iran could lead to rapid, unchecked proliferation in volatile regions – a so-called nuclear "cascade." To a degree this anxiety is healthy if it leads us to think seriously and act wisely to (i) strengthen political will in the international community to enforce treaty obligations and punish non-compliance, (ii) consider the security concerns of our allies and reaffirm or strengthen extended deterrence relationships, and (iii) develop the means to manage the longer-term proliferation risks associated with the "nuclear renaissance" through new approaches to the nuclear fuel cycle. However, there is no compelling evidence that a nuclear cascade is in the offing or that we are on the cusp of a highly proliferated world of many more nuclear powers. A cascade requires that strategic intent and an advanced technical capability, supported by rapid decision making at the highest levels, converge

at an accelerated pace in a number of countries at roughly the same time. Nuclear aspirations may indeed be rising, but what we are witnessing is less an imminent cascade and more a case of "nuclear hedging" as some states decide to keep open the nuclear option, principally through the pursuit of civilian nuclear power.

As more states go down this path, the principal risk is one of increased nuclear latency over time – a growing number of states with increasing nuclear capacity and potential (knowledge, technology, materials). Of greatest proliferation concern will be those states capable of maintaining a robust civilian nuclear infrastructure and access to material that could be used to produce nuclear weapons. These states, if sufficiently motivated, would have the means to transition relatively quickly from latent to actual capability. Managing the security challenge posed by a number of "high capability hedgers" will require a creative mix of tools, e.g., maintaining strong nonproliferation norms, country-specific security strategies, new approaches to warning, tailored export control and interdiction strategies where appropriate and, not least, an appreciation of the catalytic events that may push a latent actor to a more active or accelerated posture.

In an era where nuclear ambiguity and latency become the norm, it may be more difficult to define non-proliferation success and failure and to determine if we are winning, losing, or just treading water. Despite our cultural inclination to declare either victories or losses, the emerging nuclear landscape will be one in which "draws" are a distinct possibility.

National biodefense strategy has made progress in the last several years, but faces a daunting challenge over the longer-term in light of science and technology trends. By contrast, ambiguity and latency have been the norm for a long time with respect to biological weapons. This has always been a difficult intelligence target, and that will not change in the foreseeable future. If anything, the collection and analysis challenge will become more difficult as knowledge in the life sciences and biotechnology infrastructures continue to spread as part of the globalization process. Gaps in threat awareness with respect to intentions and capabilities, coupled with the difficulty of attributing biological attacks, makes traditional deterrence a problematic strategy. While we hope to influence the thinking of BW-armed adversaries normatively (i.e., through a commonly accepted norm that the use of disease agents as weapons is repugnant), biodefense strategy emphasizes denial and response – impeding access to information, expertise, and materials; disrupting operations; improving early warning mechanisms and the ability to deliver medical treatments quickly; and "hardening" the nation and communities to biological attack through a range of public health and consequence management preparedness activities. In the best of worlds, these measures will convince an adversary that the likely benefits of using biological weapons are not worth the cost and risk. In the worst of worlds, preparedness will save lives and minimize the damage.

Is this strategy working? There have been no biological attacks since the anthrax letters of 2001. Yet we really do not know if a terror organization like al-Qaida has been deterred, disrupted, or is simply waiting or no longer interested. Certainly, the United States has made a huge investment in biodefense in recent years: federal spending alone from fiscal year 2001 through the end of fiscal year 2008 is roughly $50 billion. It is difficult to discount the possibility that this investment has in fact paid off in attacks deterred, deferred, or disrupted. By most accounts,

though, it is a strategy that, while moving in the right direction is still a work in progress. Much more remains to be done to deliver improved preparedness and response capacity, leverage the capabilities of the private sector, engage with the public and U.S. allies, and link the BW threat to the global public health agenda. Some suggest the effort is underfunded, fragmented, and lacking "someone in charge." Others also point to what they perceive to be a larger underlying problem: the weakened competitive position of the United States in the life sciences and biotechnology.

In this view, the absence of a major biological weapons attack is not a reason to worry less about this problem; if anything, trends in science and technology are probably working against us and could one day present threats that may be exceptionally difficult to detect and assess, let alone defeat or treat. In the end, biological weapons may represent a threat in which the offense will always outpace the defense. If so, fully closing the biodefense gap may not be possible and simply preventing the gap from widening further will require persistent scientific and programmatic effort. In such a world, science will need help: strengthening the norm against biological weapons and crafting effective deterrence strategies will be essential to managing the threat.

Developments in science, technology, and the chemical industry could increase the scope for future chemical weapons proliferation and use. As in the area of biology, commercially-driven developments in the chemical industry and in chemical science and technology could have profound implications for future chemical weapons development and use. Like many industries, chemical manufacturing has globalized. Production no longer is dominated by a few, mainly western, multinational companies; it now occurs in many more facilities spread out over a larger and more diverse group of countries. Production facilities also are getting smaller and utilizing new technology. Individual plants used to focus on bulk production of a few chemicals; modern plants can economically produce many chemicals. While such developments may make good business sense, they also could facilitate chemical weapons proliferation as more people in more countries participate in chemical research, development, and production. It also may be harder to detect illicit activity in smaller plants utilizing new technology, at least utilizing equipment and protocols currently employed by Organization for the Prohibition of Chemical Weapons inspectors.[2]

Chemistry and biology increasingly are converging in the search for chemical compounds with particular effects on biological systems.[3] Indeed, it is becoming more difficult to distinguish some new compounds as either chemical or biological; the term "biochemical" is more descriptive. New tools, including robotics, microreactors, and ever more powerful computing capabilities, have dramatically increased the number of new compounds that can be synthesized and the rate at which they can be synthesized and screened. Commercial entities are creating

[2] See the statement of the Director General of the Organization for the Prohibition of Chemical Weapon's opening statement to the recent Second Review of the Chemical Weapons Convention, p. 7 <http://www.opcw.org/docs/csp/rc2/en/rc2dg02(e).pdf>

[3] See Alexander Kelle, "Introduction," The Changing Scientific and Technological Basis of the CBW Proliferation Problem," A Workshop Report, edited by Alexander Kelle, February 2007, p. 7, <http://www.brad.ac.uk/acad/sbtwc/ST_Reports/ST_Report_No_7.pdf>

large libraries of new compounds.[4] While such activity is driven by legitimate commercial pursuits, some new compounds might show promise and be exploited for malign purposes. Nanotechnology is another rapidly developing area that could have implications for chemical warfare, particularly for the identification and development of new or improved chemical agent dissemination techniques, building on ongoing work to use nanotechnology to improve the delivery of drugs for therapeutic purposes.

Combating WMD will continue to contend in a highly competitive political and resource allocation environment. How salient or prominent will combating WMD be for the next President and his national security team? There is a sense of a declining appreciation for the WMD threat among the U.S. public, and the WMD challenge has not been a major issue during the presidential campaign apart from some contention over how to address the Iranian nuclear challenge. Undoubtedly, numerous WMD and proliferation-related position papers are being written to support transition planning and the inevitable policy reviews that will occur during the first year of a new administration. It would not be surprising if a new national security team reassessed the language and underlying concepts of the current combating WMD strategy and the supporting toolkit of policy instruments. But neither would it be surprising if certain other issues (e.g., Iraq, terrorism) dominated the security agenda, at least at the outset. Additionally, the resource allocation process in the Department of Defense remains highly competitive; this will not change and likely will intensify in the period ahead given the pace of current operations, the need to "reset" and recapitalize land forces in particular, continued strategic emphasis on The Long War, and the other myriad security challenges facing the nation. Some leaders and planners may look at the absence to date of a major WMD attack as providing a margin of freedom to reduce the salience of combating WMD in national strategy and redirect resources to other priorities. Any such efforts must be informed by an assessment of the downside risk of major strategic surprise, as well as by a rigorous effort by the combating WMD community to prioritize its objectives and requirements.

[4] See the report of the Scientific Advisory Board for the Chemical Weapon Convention's 2nd Review Conference, February 2008, Annex, p. 9 <http://www.opcw.org/docs/csp/rc2/en/rc2dg01(e).pdf>