



CENTER FOR TRANSATLANTIC RELATIONS

Chemical Weapons Terrorism: Need for More Than the 5 D's

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Introduction

Even before the events of September 2001, the threat of terrorism involving chemical or biological materials gripped leaders of the United States. President Clinton indicated in January 1999 that he was “kept awake at night” because he believed that within a few years there would be an attack on a civilian target using chemical or biological materials. Since 9/11, the concern over the possibility of a chem-bio terrorist attack has increased, and many experts continue to believe that it is not a question of whether, but when such an attack might occur.

As the United States has tried to develop a response to these concerns, some experts have argued that it is time to expand the concept of national security beyond traditional, national security paradigms focused on the five D's: diplomacy, deterrence, dissuasion, denial and defense. While these concepts worked well when dealing with states, relying on them to frame a counterterrorism program may be a misplaced effort. Failed states, fundamentalist religious beliefs, and decades of alienation and anger may not be affected by diplomatic initiatives, denial of access to sites, resources, or capabilities, or threats of retaliation. As efforts are moving forward in the Department of Homeland Security (DHS) and elsewhere to develop meaningful counterterrorism strategies, it makes sense to ask whether we have the appropriate conceptual framework and tools to be able to understand and thus address effectively these emerging security challenges. A starting point for this exploration involves examining whether the traditional tools of national security, the 5 D's, help address the challenges presented by terrorism in general, and more specifically against chemical weapons terrorism.

This paper will attempt to examine the question of what a strong counterterrorism program should use as its organizing concepts. The first section will help define the chemical weapon (CW) threat, with the next section reviewing the history of CW terrorism. The final part of the paper will assess the value of the 5 D's framework in addressing the CW terrorist threat and make suggestions for how DHS might use these thoughts in its own activities.

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The Chemical Weapons Terrorism Threat

The threat from chemical weapons emerges from three sources of chemical materials that can be intentionally developed and misused to cause great harm. The first two categories include not only traditional sources such as blister, nerve and choking agents, but also more commonly found toxic materials. Agents used to make traditional CW such as sarin or VX are strictly prohibited and regulated by international treaties and domestic legislation. However, *toxic* materials, such as chlorine, organophosphate pesticides, and incendiary gases and liquids, are readily accessible and in most cases available legally.¹ A third category often overlooked when reviewing CW is a conventional attack on a chemical plant or industrial complex with the express purpose of releasing toxic materials in order to harm or further terrorize the population. The defining factor in the latter two categories is linked to intent. A conventional bomb exploding near a gas station that subsequently ignites the petroleum causing harmful smoke to be released into the air should not be considered a chemical weapon. However, a strategically planned attack on a chemical facility designed to release toxic smoke in order to poison the nearby population would be included. Similarly, conventional weapons that utilize chemicals such as cyanide in hopes that it will vaporize into a toxic cloud would also be considered chemical weapons.

Regardless of the type of CW, it is important to remember that, like other weapons of mass destruction (WMD), if a CW attack should occur it will likely have an effect that goes well beyond the casualties at the site. The very nature of chemical weapons – often invisible and perhaps odorless – is designed to cause fear and panic in addition to the physical damage caused by the actual attack. Additional impacts on the broad community may include 1) putting an overwhelming strain on a health care system having to deal with the seriously injured as well as the “worried well”²; 2) exposing first responders and others trying to address the crisis to toxic materials impairing their abilities to be responsive; and, 3) creating a societal psychological trauma that could have economic, political, and social implications. Unlike bullets or bombs that are limited in range, a toxic cloud from a chemical weapon could travel for miles, indiscriminately affecting everything in its path; also, unlike conventional weapons that tend to have an immediate and finite effect, chemical weapons can linger and effect people differently as time passes.

The availability of CW depends on the type of the weapon. Traditional weapons including nerve agents, blister agents, blood agents, choking gases, incapacitants, riot-control agents, and vomiting agents are for the most part prohibited by the Chemical Weapons Convention (CWC) and are monitored by the Organization for the Prohibition

¹ Theodore Karasik, *Toxic Warfare*, RAND 2002, p. ix

² After Aum Shinrikyo attack with Sarin poison in 1993, there were 3227 victims defined as “worried well” who self-reported to hospitals, had not been exposed to any Sarin poisoning, but were suffering from several anxiety and psychosomatic symptoms. (Jonathan B. Tucker, *War of Nerves: Chemical Warfare from WWI to Al-Qaeda*, Pantheon Books, New York, 2006, p. 347)

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of Chemical Weapons (OPCW). The CWC mandates that all chemical weapon stockpiles be destroyed. As of April 30, 2007, 100% of the declared CW production facilities have been either destroyed or converted for peaceful purposes and each facility is subject to a strict verification regime. However, only 30% of the 8.6 million chemical munitions and containers have been destroyed and only one-fourth of the world's declared stockpile of chemical agent have been destroyed.³ Not one of the declared CW states will meet the original deadline set by the CWC and all have received extensions.⁴ Russia is far behind in its destruction process creating great concerns about the safety and security of its remaining CW munitions given the size of its remaining stockpile and its poor security.

These existing stockpiles destined to be destroyed as well as those of the non-CWC member states are of great concern because of the potential for their theft and misuse. Additionally, non-member states who are not subject to verification by the OPCW and could pose a serious risk to CW security and management. Egypt, Iraq, North Korea, Israel⁵ and Syria still remain outside the oversight of the OPCW. Iraq has already been accused of allowing chemical weapons to fall into the hands of extremist groups affiliated with Al Qaeda.⁶ Although the United States and other states have supported better security and accountability for these materials via various international, regional, and bi-national programs, it is still recognized that much greater attention needs to be given to the protection, accountability, and control of chemicals that are CW precursors, critical ingredients, or potential targets.

In all of the cases mentioned above, chemical weapons are available in their most dangerous form. While some are stored in bulk containers, many of the agents are already loaded in munitions. Even so, smuggling a large warhead filled with a chemical agent across international borders would not be an easy task. And while it is possible to manufacture some of these agents in a small laboratory, it could be a daunting and dangerous task. A much simpler way of obtaining the chemicals needed is to buy them. Many of the materials needed to make a toxic weapon are readily available and legal to purchase on the open market. Toxic substances are common at chemical facilities, industrial complexes, pharmaceutical companies, oil and gas installations and fertilizer plants. Although in recent years, DHS has tried to partner with commercial private organizations to improve self-policing of private industry, much remains to be done especially outside of the United States.⁷

³ "Chemical Weapons Destruction Underway," OPCW website, <http://www.opcw.org/factsandfigures/index.html#CWDestructionUnderWay>

⁴ Interview with Jean du Preez, Director, International Organizations and Nonproliferation Program of the Center for Nonproliferation Studies, Monterey Institute of International Studies, May 29, 2007

⁵ While Israel signed the CWC in 1993 it has yet to ratify the treaty.

⁶ Barton Gellman, "US Suspects Al Qaeda Got Nerve Agent From Iraqis," *Washington Post*, 12 December 2002

⁷ *Toxic Warfare*, p. 41; *Report on Building International Coalitions to Combat Weapons of Mass Destruction Terrorism*, International Security Advisory Board, U.S. Department of State, February 2007.

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The third option for creating a chemical weapon is to target a chemical facility with conventional weapons. Many of the private chemical industry plants, such as electronic manufacturers, pesticide plants, or chemical manufacturing plants are not well protected, while other community facilities could serve as have potential targets, such as airports, harbors, or even universities, may not have made the security of chemical materials a high enough priority. Attacking a chemical facility would add exponentially to the damage caused by the bomb alone as even the perceived release of toxic gases may incite panic and cause chaos in the nearby population. Several examples from the “worst-case scenarios” that companies are required by law to provide the Environmental Protection Agency (EPA) demonstrate the hazards and challenges of securing facilities in an open, mobile society. According to its EPA report, Dow Chemical has one facility that if attacked might release 800,000 pounds of hydrogen chloride, which would in turn endanger approximately 370,000 people.⁸ The 2005 train wreck in Graniteville, South Carolina that released chlorine gas and forced extensive evacuations, dislocations, and economic disruptions in the region demonstrated the potential for an intentional train wreck or port collision becoming an “impromptu WMD” incident.⁹

A final component to consider when reviewing the CW threat is the technology and expertise needed to make the weapon. In the case of traditional chemical weapons that use sophisticated compounds and chemicals, scientific expertise would be needed. However, in the case of the simpler toxic weapon, the Internet provides unlimited communication regarding every subject including how-to guides and manuals for all kinds of weapons and warfare. Unfortunately, it now appears that someone with basic laboratory skills and access to the materials could probably put together a dangerous toxic weapon. For example, according to the Iraqi Survey Group (ISG) Report, the efforts by the Iraqi insurgent group known as “Al-Abud network” to produce CW agents were impressive although not successful. The ISG Report noted: “The most alarming aspect of the Al-Abud network is how quickly and effectively the group was able to mobilize key resources and tap relevant experts to develop a program for weaponizing CW agents.”¹⁰

Terrorist Use of Chemical Weapons

While the threshold for CW terrorism has been crossed, it has not yet become common to use CW in terrorist attacks. Perhaps it is because of the indiscriminate nature of chemical weapons or perhaps the technological expertise to produce a highly effective weapon on the black market still remains to be harnessed. However, there are numerous examples of attempts and successful uses of all three of the above mentioned types of chemical weapons.

⁸ Karasik, p. 42.

⁹ Chris Schneidmiller, *Critical Infrastructure Protection: Safeguarding the Components of Everyday Life*, WIIS Policy Brief, 2006.

¹⁰ Tucker, p. 378

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In 1986, a Christian Identity group known as The Covenant, the Sword, and the Arm of the Lord obtained potassium cyanide with the intention of poisoning the water supply.¹¹ The 1995 sarin attack in the Tokyo subway by Aum Shinrikyo killed eleven and injured more than a thousand.¹² The Liberation Tigers of Tamil Eelam (LTTE) used potassium cyanide in tea in order to cripple the Sri Lankan tea industry.¹³ LTTE has utilized other forms of chemical warfare including a gas attack on Sri Lankan troops in 1995 and the firing of chlorine gas cylinders into a military camp in 1990.¹⁴ There are also examples of attacks on industrial facilities with the intent of releasing toxic gases into the air, "...Serbian forces in Croatia used rockets, bombs, artillery, machine gun tracers and mortars on six occasions between 1993 and 1995 to attack the Petrochem plant, which produced fertilizer, carbon black and light-fraction petroleum products."¹⁵

In addition to these specific incidents, there are claims that CW have been used in current military engagements. In Chechnya both the Russians and the Chechens report that the other side has attacked with ammonia and chlorine.¹⁶ In Iraq, Iraqi insurgents have used chlorine gas and nitric acid against American troops.¹⁷ Also, there are reports that Al Qaeda members established a weapons lab in Kirma, Iraq with the intent of producing ricin and cyanide.¹⁸ While specific use from Al-Qaeda has yet to be sufficiently documented, there are examples of Osama bin Ladin expressing an interest and attempting to procure CW. In 2002, the Cable News Network (CNN) aired a video revealing Al-Qaeda to have some form of toxic gas as viewers watched dogs die from an unseen poison.¹⁹ While this revealed Al-Qaeda's interest in utilizing CW, it also demonstrated its rudimentary capability.

This diverse list of examples of previous CW use illustrates that the threat from chemical weapons against U.S. interests or on U.S. soil cannot be limited to either the international arena or the domestic one. International terrorist groups such as Al-Qaeda should be considered capable and willing to use CW. But domestic organizations such as right-wing extremists, para-military or apocalyptic groups should not be forgotten.

Security Policy Implications

¹¹ Jessica Eve Stern, *Toxic Terror*, edited by Jonathan Tucker, MIT Press 2000, pp. 153-154

¹² David Kaplan, *Toxic Terror*, edited by Jonathan Tucker, MIT Press 2000, p. 218

¹³ Abraham D. Sofaer, George D. Wilson and Sidney D. Dell, *The New Terror: Facing the Threat of Biological and Chemical Weapons*, Hoover Institution 1999, p. 82

¹⁴ Karasik, pp. 22-23

¹⁵ Karasik, p. 21

¹⁶ Karasik, p. 23

¹⁷ Press Advisory, "Issue Briefing: Chemical Weapons, Terrorism and Nonproliferation," National Press Club, 30 March 2007

¹⁸ Center for Nonproliferation, *Chart: Al-Qa'ida's WMD Activities*, WMDTRP, May 13, 2005, at http://cns.miis.edu/pubs/other/sjm_cht.htm

¹⁹ Nic Robertson, "Disturbing Scenes of Death Show Capability with Chemical Gas," *CNN.com*, August 19, 2002, found online at <http://www.cnn.com/2002/US/08/19/terror.tape.chemical/index.html>

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Given the diverse nature of the terrorist threat, unlike the simpler Cold War threat framework, there is not a one-size-fits-all approach that can be taken. Challenges to using the concepts of the Cold War emerge immediately. The first challenge is that today the distinction between an “international” and “domestic” terrorist is not always clear. In the current world of fluid borders and cyber-space, nothing is entirely domestic or international, it is a blend. Analysis of potential Al-Qaeda attacks on U.S. soil must include capability and precedent set outside the United States. Meanwhile, traditional domestic groups (e.g. Neo-Nazis) have sympathetic organizations internationally. Organizations or groups living overseas could 1) influence activities by taking action in their own country, 2) provide materials and other technical support and/or 3) respond within their own country to an action in the United States, turning a primarily domestic incident into a global one. In reality, today’s terrorism should be looked at as having potential global linkages and effects, but needs to be managed at the local level where the critical support for action is available and where the damage may be done.

Another stumbling block revolves around the fact that the intelligence requirements are very different, with critical collection efforts occurring within and outside of the United States. This necessitates the collaboration of all members of the Intelligence Community and greater international coordination. The jurisdictional lines of responsibility also may become quite blurred as the targets of observation move across borders and travel frequently between and within countries. While there have been improvements in information sharing between agencies such as the FBI and the CIA, much work remains to be done. A good example of the new commitment to collaboration is the National CounterTerrorism Center (NCTC), which was established in 2004 to ensure all appropriate agencies would have access to and receive all-source intelligence to execute any counterterrorism plan and perform its tasking. The NCTC is collocated with CIA and FBI agents and works with eleven other counterterrorism operation centers daily. It has created the NCTC Online (NOL) which serves as the counterterrorism community’s library with 6000 users, 6 million documents, and 60 agencies contributing materials.²⁰

A third area of divergence from past national security strategies is that countering terrorism rests on excellent intelligence about individuals and small groups and not about large troop movements or clandestine missile tests. The critical piece of data that can be used to prevent a terrorist attack may reside in understanding the local social network and dynamic. Gathering and analyzing this information may require monitoring an American citizen both inside and outside of the United States in ways that may infringe on the individual’s civil rights and liberties. The concern over the degree to which the Patriot Act may have infringed on these rights as the government seeks access to enough information to prevent an act of terrorism reflects a tension that was not for the most part an issue for the last 40 years. Unlike spying during the Cold War, monitoring U.S. citizens who may be helping a terrorist group or are even part of one challenges the

²⁰ *National CounterTerrorism Center and Information Sharing: 5 Years Since 9/11—A Progress Report*, September 2006, http://www.nctc.gov/docs/report_card_final.pdf.

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delicate balance between security and individual liberties that a democratic nation must be careful not to upset.

While other areas of divergence between today's threat of transnational terrorism and the Cold War's superpower struggle could be identified, the point is that it is not possible to take the policy strategies designed for nation states and apply them universally to terrorists. The five dimensions of policy exist as a sort of continuum with none standing completely alone or being sufficient. If first attempts at *dissuasion* do not work then *deterrence* and *denial* must be added to the equation. Finally, if none of the above prevent an attack then *defense* must have been prepared for and utilized when appropriate. Throughout each and every aspect *diplomacy* plays a critical role. Diplomacy is necessary in order to: keep citizens and other nations aware of possible consequences (dissuasion); negotiate in order to prevent use (deterrence); undercut training, technology, materials and funding (denial); and reassure public in a time of crisis (defense). But, applying these traditional national security concepts to the terrorist challenge limits the set of activities undertaken and may lead to serious policy errors and a flawed counterterrorist strategy.

By definition, terrorists are challenging the status quo, and thus may not adhere to accepted social norms and mores. Terrorists are focused on a campaign to win the "hearts and souls" of key constituents, whether through fear or faith – their war revolves around a communications strategy that can succeed even when a specific incident might appear to fail. As a result, today's terrorist threat cannot be dealt using just the traditional tools of national security. For example, there are few standard denial practices that can be implemented when confronting terrorist organizations, i.e. embargos cannot be placed, nor can trade be restricted. In addition, some of today's terrorist do not appear deterrable or open to diplomatic overtures. They could, however, be denied safe-havens or assistance if their state sponsors and enablers were persuaded to discontinue their support. Here is an excellent example of how traditional approaches of state-to-state relations should be integrated in any counterterrorism strategy.

While the 5 D's cannot be applied to terrorists "as is," they do have value as part of a larger conceptual framework that recognizes the breadth and scope of effort needed to truly take on the terrorist threat. A much more systematic and sustained effort must be used that confronts the appeal of the terrorists while also limiting its ability to act successfully and effectively.

Chemical Weapon Counterterrorism Policy

As with other forms of WMD, the counterterrorism strategy for chemical weapons should focus on the continuum of activities that span prevention to consequence management. Prevention would encompass those elements associated with dissuasion, deterrence and denial while consequence management would deal with defense, remembering that diplomacy is active throughout the process. Such a counterterrorism strategy would also have to be holistic, providing a systems framework that recognizes social networks and

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linkages, multiplicity of levels of effort, complexity of any terrorist event and response, and the dynamic and evolving nature of terrorist strategy, organization, and practices. Applying this concept to the CW terrorist threat requires a CW Terrorist Threat Chain, which has yet to be fully identified and then integrated. Specifically, it should include: a “cradle to grave” control and security system for dangerous chemicals; the deconstructing of a possible terrorist attack on a chemical facility starting with the initial impetus and ending with the mitigation of effects; and, a much better sense of the root cause of terrorism in general, and specifically of CW terrorism, starting with understanding in a given context the driving forces behind the terrorism, the means of recruiting, and the catalyst for individuals and groups to use violence to address their grievances, alienation, and anger. Basically, it would require an enormous effort linking experts from multiple and diverse disciplines, such as terrorism, critical infrastructure, chemical industry, chemical weapons, chemistry, military operations, and explosives.

Numerous policy recommendations have been developed and made since the inception of the CWC, the attacks of September 11th, and the initiation of the “global war on terrorism,” and many have been instituted.²¹ None has tried to create a comprehensive framework that recognizes the full-scope of the terrorist challenge. It is not just for the State Department, Defense Department, and DHS – its underlying causes must be acknowledged and dealt with in meaningful ways, whether it involves making progress on Israeli-Palestinian peace or providing better lives for second generation Muslims living in Europe. These causes are ones where the U.S. government may be able to only impact marginally since they often have to do with the inner workings of communities and reflect a lack of equity, opportunity, and purpose. Moreover, these problems are not ones that any of the 5 D’s can provide a conceptual framework for as they don’t address the social and psychological dimensions of security. The result is that the 5 D’s do not fit the new broader concept of security relevant to understanding and responding effectively to today’s terrorist threat.

Prevention --specific suggestions in the area of prevention include:

- Improve interagency coordination in regards to CW counterterrorism policy
- Ensure that intelligence collection remains on unconventional terrorist threats
- Continue encouragement and incentives for private industry to self-police
- Strengthen anti-terrorism training programs for local law enforcement, especially in the chemical weapons arena
- Analyze the underlying concerns of extremist and terrorist groups and make recommendations to the State Department
- Promote increased cooperation with allied states and encourage other CWC member states to adopt domestic legislation outlawing CW

²¹ Jonathan Tucker outlined several policy suggestions in his chapter in *Terrorism with Chemical and Biological Weapons*, edited by Brad Roberts, 1997. While the book is now 10 years old and many of the recommendations have been implemented, it is important to consistently review and upgrade them as the terrorist threat changes. Many of the approaches listed here originated in Tucker’s chapter, pp. 95-111

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- Bolster programs that work to separate terrorist organizations from mainstream religious and national groups
- Increase preparedness so that a chemical attack would be less effective or even futile
- Strengthen the health care system including first responders, treatment facilities and follow-up care
- Create standards for dissemination of sensitive scientific information

Consequence Management—items that should already be in place:

- Improved coordination of federal emergency response plans with state and local authorities
- Established emergency medical response teams, especially in urban areas
- Determined retaliation plans
- Stockpiles of chemical defensive materials in large urban areas
- Developed public service announcements for emergency broadcast, informing the public of safety precautions as well as how and where medical treatment is available
- Upgraded CW detection and identification devices
- Enhanced antidotes and therapeutic drugs

Conclusion: Role of the Department of Homeland Security Must Mature

DHS must continue to mold itself into one organization, stripping away any residual institutional and cultural barriers to full integration. It should, as part of this process, continue to build on its funding for the training, equipment, and exercises that are critical to limiting the impact of any CW terrorist attack as well as perhaps to helping to deter such an attack. DHS must also facilitate communication and information sharing between organizations that already work on these issues, taking the lead at filling in the gaps in security policy, especially in the areas where “international” and “domestic” touch. While it has begun to establish a network between the appropriate local, state, federal, and international agencies and individuals – much more needs to be done.

The DHS already has in place several mechanisms that can aid in the implementation of the policy directives mentioned above. In addition to the federal office of DHS, there are the individual state offices (Office of Homeland Security (OHS)). The Department of Homeland Security looks to these offices for implementing training and programs at the state and local level. In addition, DHS can call upon the multi-faceted expertise set forth in its various National Centers of Excellence. These centers include some of the most prominent figures in the field with regard to chemical weapons, terrorist motivations, and consequence management. Finally, the various state fusion centers that state OHS offices play a part in, such as the California State Threat Assessment Center, serve as an ideal way to facilitate communication between the federal, state, and local levels. The threads tying these groups together need to be strengthened and ensured of ongoing, sustained

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support if there is to be consistency in threat assessments, coherence in information provided the public during times of peace and crisis, consistency of standards and procedures, and robust communication capabilities.

Specific activities that DHS could undertake include the creation of agreements that allow for international intelligence to be shared. While this project will certainly involve numerous federal organizations, DHS could lead the diplomatic effort to get things started. Additionally, there is an abundant need for diplomacy on a national level between federal and state/local responders. Jurisdictional battles should be fought well before any crisis reveals weaknesses or gaps in coverage. Because toxic materials are so easily available, there is a need for an extensive risk assessment to determine the areas of greatest concern. DHS could also be instrumental in authoring a national initiative to protect chemical facilities. Much more attention needs to be paid to this threat as the potential targets remain too vulnerable, especially given the ease of acquiring explosives that could be used to release toxic materials. Whether it is additional legislation, better law enforcement, or industry-wide regulations and codes of practice, DHS should take a lead in identifying and then advocating for steps that will better deter, dissuade, and deny terrorists opportunities for CW terrorism.

The Department of Homeland Security, however, should go beyond the 5 D's – it should be the catalyst to establishing the holistic system for countering the terrorist threat in general, and specifically as it relates to CW terrorism. It should lead the way to casting off the 5 D's for a more appropriate and useful comprehensive paradigm that stretches from motives to materials to mitigation.

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