

# The New Threat of Unconventional Warfare

By ALBERT J. MAURONI

**C**urrent discussions on the nature of nuclear, biological, and chemical (NBC) warfare inevitably lead to the popular statement that the potential terrorist use of chemical and biological warfare agents, radiological “dirty bombs,” and nuclear (CBRN) devices represents the greatest threat to Western civilization.<sup>1</sup> There is little, if any, discrimination made between the military application of NBC weapons by a nation-state such as North Korea or Pakistan and the terrorist application of CBRN hazards against noncombatant targets, despite the disparity in mass, sophistication, and impact of the two threats. Eleven of the 15 Department of Homeland Security (DHS) scenarios feature

the adversarial use of a CBRN device or threat against the U.S. population, often with greatly exaggerated casualties and economic impact.<sup>2</sup> They are, without question, worst-case scenarios, designed more to stress decisionmakers by proposing numerous “what-if” cases than to seriously develop operational capabilities and allocate appropriate resources.

This intentional mirroring of nation-state capabilities onto terrorist organizations has been driven largely by the events of September 11, 2001, and the tone of the White House’s *National Strategy to Combat Weapons of Mass Destruction*.<sup>3</sup> Because of the 9/11 event, many analysts believe that the natural inclination of terrorists will be to

escalate from the use of conventional munitions to military-grade chemical-biological (CB) warfare agents and even tactical nuclear weapons.<sup>4</sup> These military-grade agents and technologies will, according to the National Strategy, come from rogue nations who have (or intend to develop) a weapons of mass destruction (WMD) program. These two issues have unnecessarily caused the counterproliferation and counterterrorism communities to come to blows over policy direction. Although one could argue that terrorists’ statements and attempts to use crude

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National Guard Bureau officials observe civil defense exercise by Israeli Homefront Command and civilians in Nazareth, Israel

U.S. Army (Jim Greenhill)

industrial chemicals represent “intent,” there have been no cases of the successful terrorist use of military-grade CB warfare agents, radiological “dirty bombs,” or stolen nuclear weapons with the end result being a mass casualty event.

There are constant debates on how the United States should respond to a nation-state’s or terrorist organization’s actual employment of a CB hazard or

same rigor to the evolution of NBC weapons, we might discover that the future threat is much more manageable than the so-called experts would have us believe. In 1989, the concept of fourth generation warfare was developed in an article in the *Marine Corps Gazette*.<sup>5</sup> This concept has matured over the years, and others have elaborated on it in detail. The basic discussion separates the history of military warfare into four distinct

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weapon. What if a terrorist CB incident does not cause mass casualties, as with the 2001 anthrax attacks in the United States? Assuming that we have the forensics capability to assign attribution to a particular country or organization, then what? Are we clear on the culpability of that nation? Should the U.S. Government respond to a military CB weapons attack against our forces with a nuclear weapon, regardless of whether or not the state is a nuclear power? Ironically, many of the same people and organizations who advocate the use of nuclear weapons as a retaliatory tool against CB warfare incidents are often the same ones who dismiss the idea that CB weapons represent a true WMD capability equivalent to nuclear weapons.

Military analysts and academics have failed to examine the technological evolution of NBC weapons (and CB weapons in particular) against the development of military strategy over the course of history. They apply the Cold War model to past, current, and future employment of CB weapons, viewing any and all chemical or biological weapons use or terrorist incidents as large area, mass casualty events. For example, note the recent cases of analysts identifying terrorist-employed chlorine as a WMD merely because it was once used as a chemical weapon in 1915. This application of the Cold War model ignores the type or amount of CB warfare agent, the delivery system, the purity of the agent, and a host of other factors required for a successful CB weapons attack. That process has resulted in the stagnation of ideas and concepts on how the United States ought to address the threat of terrorist CBRN incidents.

If we examine the changing nature of military operations over time and apply the

and overlapping phases, none of them involving a sudden transformation in military affairs. Each generation required changes in politics, economics, society, and technology to create the basis for a new mode of warfare.<sup>6</sup> This concept is also applicable to the discussion of how the U.S. Government ought to view and address NBC warfare and terrorist CBRN incidents. The generations are:

**First generation CB warfare (1675 to the early 1800s).** Most efforts were relatively crude prior to the emergence of chemistry and biology as formal academic fields but did represent an initial effort to employ CB warfare against massed forces.

**Second generation CB warfare (early 1800s to 1918).** British and American forces examined the potential of filling artillery shells with toxic industrial chemicals. This later developed into the heavy but inefficient use of industrial chemicals on the battlefields of World War I.

**Third generation NBC warfare (1918 to 1995).** The deliberate design, production, storage, and employment of CB warfare agents clearly distinguish this period. While nuclear weapons have no first or second generation lineage, certainly their development and employment fit in the third generation model.

**Fourth generation NBC warfare (1995 to the present).** Future terrorist CBR incidents will be single attacks with limited casualties, intended to disrupt specific government or commercial activities and create wide-scale panic and economic chaos. Future state use of CB weapons will be focused on disruption of fixed sites and critical infrastructure.

The clash between the counterproliferation and counterterrorism communities can be directly sourced to the failure to recognize that the fourth generation model has overtaken the Cold War model for unconventional, as well as conventional, warfare.

### “Generational” Warfare

Over the course of military history, NBC warfare has changed significantly. Military organizations have thought about the application of chemical and biological hazards in support of combat operations for centuries. Most modern treatises on CB warfare open with discussions on how early military forces used poisoned arrows or diseased animal carcasses to increase the lethal impact of their operations against adversarial forces or cities. These ungoverned efforts were relatively unsophisticated because they developed prior to the advent of chemistry and biology as formal academic fields in the late 19<sup>th</sup> century. They did, however, represent an initial effort by nation-states to employ CB warfare weapons against massed forces. Recognizing this trend, France and Germany signed the Strasbourg Agreement in 1675 to outlaw the use of poisoned bullets.

As military forces developed into the second generation of warfare, nations recognized the potential of toxic chemicals and contagious biological organisms. There is the story about British troops infecting American Indians with smallpox as a tactic to diminish their forces.<sup>7</sup> Both British and American forces examined the potential of filling artillery shells with toxic chemicals during the 1850s and 1860s but did not further develop the concept. These innovative efforts directly led to early arms control attempts at the end of the 19<sup>th</sup> century to “prohibit the use of projectiles the only object of which is the diffusion of asphyxiating or deleterious gases.”<sup>8</sup> The birth of modern chemical warfare began in 1915 as the nations of Europe used advanced knowledge of industrial manufacturing, engineering, and chemistry not only to develop new chemical warfare agents, but also to store, transport, and employ them in mass effects to affect broad swaths of the battlefield. General John Pershing later noted that “gas was a significant weapon, but not as a producer of battle deaths.”

The events of World War I led to another treaty prohibiting the “first use” of chemical weapons in 1925, but major powers continued to develop military CB warfare capabilities throughout World War

II and the Cold War period. The United States invested in a massive infrastructure to research, develop, test, evaluate, produce, distribute, and employ CB warfare agents, an effort second only to the Manhattan Project. Although CB weapons were not employed by the two superpowers, certainly operational and strategic employment concepts were actively developed. There are only a handful of cases where these weapons have been successfully employed by nation-states, but these all fit the “industrial warfare” model of third generation warfare. The earlier concept of using CB weapons solely against military forces changed to consider operational employment against noncombatants (1930s, China and Ethiopia; 1940s, World War II; 1960s, Yemen; 1970s, Vietnam; 1980s, Iran and Iraq) as a means to achieve national objectives. The third generation peaked with the use of nuclear weapons at Hiroshima and Nagasaki and continued with four decades of arms control efforts attempting to restrict and roll back the use of NBC weapons against both combatants and noncombatants. This period was when weapons of mass destruction programs flourished.

Throughout history, a military’s ability to employ NBC weapons was directly affected by the operational concepts of the day, the national leadership’s willingness to employ such agents, and the technical ability to deliver these weapons against an adversary or noncombatant target. The lack of mature industrial development of CB weapons limited forces to using improvised CB hazards during first generation warfare. The low appreciation for the potential of CB warfare agents and limited research and development into delivery systems restricted their use during the second generation, but the general concepts for CB warfare were established. The third generation of warfare saw the full industrial mobilization of nation-state capabilities to develop and refine CB warfare agents, leading to the creation of nuclear posture reviews supporting massive force-on-force strategic analyses. As military operators and civilian scientists joined forces to develop this unconventional capability, the modern employment of NBC weapons was possible. But what about the future?

#### Fourth Generation

Politicians, arms control organizations, law enforcement officials, and defense leaders have all liberally used the term *WMD* to discuss CB warfare capability, whether it be a

gram of anthrax in a letter or North Korean ballistic missile tests. As long as the weapons system (improvised or engineered) had an NBC component, it was a WMD capable of causing mass casualties. What agent was used, how much agent was used, against what target it was used, for what purpose—none of that was relevant. This is a classic third generation mindset, focusing on outdated scenarios of the planned heavy and sustained use of NBC weapons against operational forces and/or strategic targets. Although this mindset was appropriate from 1945 to 1990, it became increasingly irrelevant with the advent of terrorist CBRN hazards.

Here are the facts: the United States and Russia have publicly abandoned the development of CB warfare agents and have committed to destroying their stockpiles of chemical munitions and production plants. The number of CB warfare-capable countries has actually decreased since the 1950s, and of those countries suspected of developing NBC weapons, none come close to the two superpowers’ former unconventional weapons programs. At best, these nations might be able to inflict a few thousand casualties on a prepared military force prior to exhausting their stockpile. Nations that do develop NBC weapons do so because they have adversarial, aggressive neighbors (who, in turn, develop similar unconventional capabilities), because modern weapons systems are increasingly expensive, and because they lack the resources for long campaigns.

The most popular rationale for the decline in national WMD programs is that the international community has a moral “repugnance” for NBC weapons, or at the least, that nation-states recognize that the international community’s backlash from developing and using these

weapons will be significant. This weak rationale pales in the political reality of the lack of action by any nation-state to Iraq’s use of chemical weapons against Iran in the 1980s. Others will argue that CB weapons are ineffective against trained military forces and therefore are of little value in modern combat. This argument assumes (incorrectly) that nation-states keep their troops trained and equipped for such a threat (consider past General Accounting Office assessments of U.S. force readiness).<sup>9</sup> There is a much simpler answer: many nation-states have recognized that their national security goals have changed and no longer require the massive use of NBC weapons.

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Chemical-biological weapons were created to impact operational-level conflicts, intended to degrade an opposing force’s warfighting capabilities. Correctly employed, they are silent, fast-acting, and can cover a large area, aiming to incapacitate or reduce large, fielded military forces. But like high explosives, one requires a significant amount of CB munitions to affect a large target, if one desires to significantly influence combat operations. Two recent events changed this calculus. First, the Cold War ended, reducing the possibility of superpower conflict that might escalate to the heavy use of unconventional weapons. Second, militaries have

gained access to increasingly accurate precision munitions. With so-called smart bombs, it is no longer necessary to blanket an area with conventional or unconventional munitions to achieve a desired military effect. The dramatic increase in the ability to target and destroy a particular



Library and Archives Canada (W.L. Kitch)

military system or complex with conventional munitions effectively drove away the need for CB munitions. It was never about the “morality” of CB weapons; it was about efficiencies and advocacies.

CB weapons may still have a role in future combat for some nations, but they will not be used to cause mass casualties, nor will nation-states need to produce and stockpile them in large quantities. Nation-states will use CB weapons stockpiles either to deter aggressive neighbors from attacking or (lacking access to expensive precision munitions) to reduce the time and cost of conventional combined arms operations aimed against their neighbors. Used in relatively small numbers, these weapons could temporarily disrupt military and commercial activities (especially critical infrastructures such as headquarters, communication sites, air bases, seaports, and major logistics sites) to the point where the effects of conventional tactics will be significantly multiplied. Massive use of CB weapons to incapacitate and/or destroy a large standing military force or to attack population centers is no longer a desired capability, given the probable desire to minimize the chance of international intervention into regional conflicts.

For instance, North Korea is believed to own a large stockpile of CB weapons and delivery systems that can easily range Seoul and U.S. forces in forward bases within South Korea. American and South Korean

military forces maintain and practice CB defense capabilities as well as significant air/missile defense and offensive strike capabilities within their military exercises. The South Korean government has issued protective masks to its citizens and exercised civil defense drills. What, then, is the value of an offensive CB weapons program to North Korea? The official role, as claimed by the

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North Korean government, is to augment its defense against a U.S.-led coalition attack into its region. If North Korea decided to use CB weapons during an invasion of South Korea, direct casualties from CB weapons would be minimized as a result of active and passive defenses. CB weapons use would, however, create operational advantages in the opening phase of combat by degrading military force capabilities at key terrain points and by reducing operational tempos at critical air bases and seaports.

Nations developing CB weapons do not view these unconventional munitions merely as tools to deter U.S. military actions or asymmetrically counter U.S. military strengths. If the two conflicts between the United States and Iraq have shown anything, it is that the threat of CB weapons will only delay, but not deter, U.S. military action.

Using the capabilities of a nation's limited CB stockpile against the deep and broad conventional and nuclear capabilities of the U.S. military is just not a feasible or logical threat; they know it, and our military leadership knows it. If one examines the list of nations suspected of possessing or developing CB weapons, there is a long history of conflict between these nations and their neighbors. It is natural to expect a country like Iran to seek a military advantage over traditional neighboring adversaries, to include the acquisition of unconventional weapons.

These are not irrational actions.

Obviously nuclear weapons are the exception to this theory, but then again,

nuclear weapons have always been the unique WMD. Only military forces consider them as having tactical or even operational utility; to politicians, arms control agencies, and heads of state, they have been and always will be strategic weapons, and therefore they have unique strategies and concepts. Although many agencies and talking heads will claim that the term WMD includes nuclear, biological, and chemical weapons, to top government officials it is really only nuclear weapons that count. The U.S. Government does not worry about Iran's or North Korea's CB weapons, as reflected by the utter lack of discussion on these topics in current meetings and conferences inside the Beltway. However, this does not exclude the mention of CB weapons, in an obligatory fashion, in official government statements and speeches. The Cold War concept of massive CB weapons employment, combined with arms control discussions on the impact of unconventional weapons, made them part and parcel of the WMD mythology.

Terrorists and insurgents have explored the concept of CB warfare since at least the 1970s, but there have been only a few instances where an actual capability to use military-grade CB warfare agents was demonstrated. One was Aum Shinrikyo's use of the sarin nerve agent in the Tokyo subway in 1995, which caused 12 fatalities and fewer than 1,000 casualties resulting from actual nerve agent exposure (as opposed to the oft-cited 5,000 “worried well”). The other was the 2001 case of anthrax being mailed to several media organizations and congressional offices, causing 5 fatalities and 17 infections. If one excludes the discrete use of CB warfare agents as assassination tools, all other cases of CB terrorism featured the improvised use of industrial chemicals and natural biological organisms against small population sets with no repeat attacks involving regeneration of basic starter materials. Although there have been many cases of smuggling or illicit sales of radioactive material, we have yet to see the first attempt by a terrorist group to employ a radioactive dispersal device (or dirty bomb), let alone a nuclear weapon.<sup>10</sup>

The tendency for nonstate actors to make do with improvised materials should not be a surprise. Certainly, actions to develop and improve improvised explosive devices (IEDs) in Iraq and Afghanistan have followed this trend, including the use of ton-containers of chlorine as part of vehicle-borne IEDs.<sup>11</sup> The nature of the global economy encourages nonstate actors to use dual-use materials as weapon



FBI

**Anthrax-laced envelopes were sent to media and political figures after 9/11**

components. Of course, terrorist organizations are interested in CBRN hazards, as the Intelligence Community's latest assessments state. But the Central Intelligence Agency assessments are very careful not to say CBRN *weapons* or loosely use the term *WMD*.<sup>12</sup> Terrorists read the papers and have noticed the frequent hysteria surrounding DHS exercises, "white powder" scares, and dirty bomb stories. They want to capitalize on any tactic that will paralyze Federal/state agencies and frighten the general populace. They do not require weapon-grades material and military delivery systems to accomplish those ends.<sup>13</sup> Commercially available industrial chemicals (in particular, toxic inhalation hazards), infectious and indigenous biological organisms, and radioactive isotopes are all readily available without calling upon a "rogue nation" for assistance.

Extrapolating the current trend of technologies and behaviors of these individuals, we can conclude that future terrorist CBR incidents (purposefully leaving off the *N*) will be single attacks with limited casualties, intended to disrupt specific government or commercial activities and create wide-scale panic and economic chaos. Many observers postulate that a terrorist group will use a nuclear device in an American city (if they ever obtain one), but

this is not a plausible scenario, if only because the ability to procure, build, or steal a nuclear device is not trivial.<sup>14</sup> Conventional and improvised weapons are more readily obtainable, require little training or infrastructure, and deliver the desired results (global attention) while avoiding massive government attribution. Moreover, according to T.X. Hammes, the 2001 anthrax attacks (or future envisioned bioterrorist incidents) are a *fifth* generation threat, but he overemphasizes the potential impact and undervalues the adversary's intent.<sup>15</sup> Terrorist use of CB hazards fits much more accurately in his well-developed description of fourth generation warfare.

of CB warfare in terms of the Cold War? It is simply this: they have failed to acknowledge that fourth generation warfare applies to NBC weapons and tactics just as much as it does to conventional weapons and tactics. To clarify, I am not stating that CB weapons are only a nuisance to be ignored as a modern threat (although other military and policy analysts seem to think so). Employment of CB weapons on the battlefield can have a significant operational impact, as seen at Caporetto in 1917, in Ethiopia in 1935, and during the Iran-Iraq war (1986–1988). On the other hand, homeland security scenarios involving terrorists using 10 kiloton nuclear devices

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Given that future military trends suggest that adversarial use of NBC weapons will be minimal and focused on disruption of fixed sites and critical infrastructure, and an unemotional, logical view of terrorist CBRN intentions does not demonstrate a mass casualty capability, why is it that U.S. Government agencies and others continue to think

and agricultural sprayers filled with anthrax against multiple U.S. cities have little rationale for serious consideration.

Because of the relative lack of actual NBC warfare cases throughout history, there is more supposition than actual experience available by which to analyze and predict how future state and nonstate players might



Florida Air National Guard Airmen and civilian first responders treat victims during mass casualty exercise

12<sup>th</sup> Fighter Wing (Shelley Gall)

employ these unconventional weapons. As a result, many studies and discussions on NBC warfare fixate on the toxic properties of those specific agents rather than the credible employment of the weapons systems in military and homeland security scenarios and their realistic effects on people (protected and unprotected), mission capabilities, and critical infrastructure. This directly leads to dire and unsubstantiated warnings about how grams of biological agent and drops of nerve agent can kill “millions.” This exaggeration is not helpful to understanding future employment of NBC weapons and CBRN hazards.

At the end of the day, it may be that the future impact of NBC weapons—at least at the theater level of warfare—may be limited to merely amplifying the role of conventional weapons systems and tactics, at least when excluding the possibility of a strategic nuclear exchange. The use of unconventional weapons may or may not result in the success of a military campaign. Stephen Biddle, in his development of a model of combat operations, commented:

*[T]o understand WMD's military effects, one must explain conventional capability first. Regional mass destruction warfare would probably not shut down conventional operations by a great power: regional nuclear arsenals will probably be tiny for the foreseeable future, and most great powers train their troops to fight in chemical and biological environments. The nature of the fighting would change, perhaps drastically, as the combatants seek to cope with damage incurred and reduce vulnerability to further attacks. But most do this by modifying their conventional-war methods for the special conditions of WMD (e.g., by spreading out troops and supporting infrastructure).<sup>16</sup>*

Biddle has captured a key point here: unconventional weapons, while influencing the battle, do not necessarily win or halt conventional operations in and of themselves. This is an incredibly relevant point for national strategy policy and military concepts. The current development of the “combating WMD” strategy emphasizes interdicting the global shipment of WMD technology and material, taking out production and storage sites, intercepting WMD delivery systems, and planning the response to mass casualty events. This demonstrates a strategic level focus against a particular weapons system and

distinct threat that is, in nearly all cases, going to be a limited factor in future battles.

Current and projected trends do not support the theory that the terrorist use of CBR hazards will result in mass casualty events. What we have seen, and will see in the future, are small-scale, single event incidents using improvised industrial hazards that may kill a handful and panic thousands. And yet the current national strategy to combat terrorist WMD is identical to that proposed for nation-state proliferation, based on the belief that terrorists are receiving material and technology from nation-state WMD programs. This has not been the case with Aum Shinrikyo, al Qaeda, or other terrorist groups. The continued focus on NBC weapons as a third generation warfare threat has paralyzed analysts’ ability to accurately consider their effects to the point where the U.S. Government is spending billions of dollars on the wrong approaches.

The concepts of “generations of war,” revolution in military affairs, and phases of military transformation are important to the study and development of military strategy and operational concepts. Certainly the case has been made that conventional warfare has evolved and changed over time; the question has to be asked, why has no one considered that the same has occurred to unconventional warfare? The current national policy of using nuclear weapons as an option to retaliate against CB weapons use is now understandably not executable under this theory. The strategy of deterrence will not work against a fourth generation actor employing CBRN hazards. These facts force us to revisit how NBC weapons will be used in the future so we will have the right capabilities and concepts to counter these dangerous weapons. **JFQ**

#### NOTES

<sup>1</sup> U.S. Department of State, “The Global Challenge of WMD Terrorism,” in *Country Reports on Terrorism*, April 30, 2007, available at <[www.state.gov/s/ct/rls/crt/2006/82737.htm](http://www.state.gov/s/ct/rls/crt/2006/82737.htm)>.

<sup>2</sup> Consider David Howe, “Planning Scenarios: Executive Summaries” (Washington, DC: The Homeland Security Council, July 2004), available at <[www.globalsecurity.org/security/library/report/2004/hsc-planning-scenarios-jul04.htm](http://www.globalsecurity.org/security/library/report/2004/hsc-planning-scenarios-jul04.htm)>.

<sup>3</sup> *The National Strategy to Combat Weapons of Mass Destruction* (Washington, DC: The White House, December 2002), available at <[www.whitehouse.gov/news/releases/2002/12/WMDStrategy.pdf](http://www.whitehouse.gov/news/releases/2002/12/WMDStrategy.pdf)>.

<sup>4</sup> The term *military-grade CB warfare agents or military CB weapons* refers to the development and

intentional employment of military platforms engineered to deliver CB weapons (as identified in the Chemical Weapons Convention as Schedule 1 toxic chemicals or ITF-6A biological weapon threat list) in quantities calculated to create a significant operational effect. This is as opposed to the improvised use of industrial chemicals, indigenous biological organisms, or industrial radioactive isotopes by nonstate actors.

<sup>5</sup> See William S. Lind et al., “The Changing Face of War: Into the Fourth Generation,” *Marine Corps Gazette*, October 1989, 22–26, available at <[www.d-n-i.net/fcs/4th\\_gen\\_war\\_gazette.htm](http://www.d-n-i.net/fcs/4th_gen_war_gazette.htm)>.

<sup>6</sup> Thomas X. Hammes, *The Sling and the Stone* (St. Paul, MN: Zenith Press, 2004), 30–31.

<sup>7</sup> Peter d’Errico, “Jeffrey Amherst and Smallpox Blankets,” available at <[www.nativeweb.org/pages/legal/amherst/lord\\_jeff.html](http://www.nativeweb.org/pages/legal/amherst/lord_jeff.html)>.

<sup>8</sup> See “Laws of War: Final Act of the International Peace Conference, July 29, 1899,” available at <[www.yale.edu/lawweb/avalon/lawofwar/final99.htm](http://www.yale.edu/lawweb/avalon/lawofwar/final99.htm)>.

<sup>9</sup> See, for example, General Accounting Office, “Chemical and Biological Defense: Soldiers Inadequately Equipped and Trained to Conduct Chemical Operations,” May 1991; and “Chemical and Biological Defense: Observations on DOD’s Risk Assessment of Defense Capabilities,” October 2002.

<sup>10</sup> Although one may point to the Chechen-buried cesium-filled package discovered at Ismailovsky Park in 1995 as an example of the terrorist employment of a radioactive dispersal device, the fact remains that it did *not* go off. Nor have any other terrorist devices been discovered, at least by public accounts (Jose Padilla’s case in point). As we all know, “close” only counts in horseshoes and nuclear bombs—not in unexploded and imagined radiological dispersion devices.

<sup>11</sup> Mimi Hall, “Chlorine bombs pose new terror risk,” *USA Today*, March 23, 2007, available at <[www.usatoday.com/news/washington/2007-04-23-chlorine-truck-bomb\\_N.htm](http://www.usatoday.com/news/washington/2007-04-23-chlorine-truck-bomb_N.htm)>.

<sup>12</sup> Central Intelligence Agency, “Terrorist CBRN: Materials and Effects,” available at <[https://www.cia.gov/library/reports/general-reports-1/terrorist\\_cbrn/terrorist\\_CBRN.htm](https://www.cia.gov/library/reports/general-reports-1/terrorist_cbrn/terrorist_CBRN.htm)>.

<sup>13</sup> Many policy and intelligence analysts seem to believe that the growing availability of scientific technology, educational opportunities, and the global economy directly supports an increasing threat of terrorist CBRN incidents. This line of logic seems to avoid any discussion of terrorist intent, motives, and means.

<sup>14</sup> See Michael Levi, *On Nuclear Terrorism* (Cambridge: Harvard University Press, 2007). It is not a question of *when*, but *if* terrorists can develop and deliver a capability to cause mass destruction on an unprepared and unprotected citizenry.

<sup>15</sup> Thomas X. Hammes, “Fourth Generation Warfare Evolves, Fifth Emerges,” *Military Review*, May–June 2007, 21–23.

<sup>16</sup> Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton: Princeton University Press, 2004), 9.