



# Deterring and Dissuading Nuclear Terrorism

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# Deterring and Dissuading Nuclear Terrorism

## Author Biography

John J. Klein is a Senior Analyst at ANSER in Arlington, Virginia. He holds a Ph.D. in politics, with a strategic studies focus, from the University of Reading and a master's in national security and strategic studies from the U.S. Naval War College, where he was a Mahan Scholar. He previously served as a Federal Executive Fellow at the Brookings Institution in its Foreign Policy Studies program. Dr. Klein has served as a Countering WMD Planner for the last four years, and writes frequently on national policy, military strategy, and the implications of the Law of Armed Conflict. The author may be reached at: [john.klein@anser.org](mailto:john.klein@anser.org).

## Abstract

While nuclear deterrence theory may be well-suited to dealing with nuclear-armed states, its suitability for deterring nuclear terrorism has frequently been questioned since 9/11. While terrorist organizations do not necessarily act uniformly or according to the same underlying beliefs, many of the most aggressive organizations are motivated by an ideology that embraces martyrdom and an apocalyptic vision.<sup>1</sup> This ideology may be based on religion or a desire to overthrow a government. Consequently, terrorists motivated by ideology who intend to use a stolen or improvised nuclear device against the United States or its interests may not care about the resulting military repercussions following a nuclear attack. In such a scenario, some strategists think a terrorist organization's leadership may prove "undeterrable" by traditional military means. Nevertheless, deterrence is still a critical element in U.S. national strategy to prevent a nuclear attack. Furthermore, deterrence combined with dissuasion works to reduce the likelihood of nuclear terrorism being used against the United States, while also mitigating the consequences should such an act actually occur.

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## Abstract

While nuclear deterrence theory may be well-suited to dealing with nuclear-armed states, its suitability for deterring nuclear terrorism has frequently been questioned since 9/11. While terrorist organizations do not necessarily act uniformly or according to the same underlying beliefs, many of the most aggressive organizations are motivated by an ideology that embraces martyrdom and an apocalyptic vision.<sup>1</sup> This ideology may be based on religion or a desire to overthrow a government. Consequently, terrorists motivated by ideology who intend to use a stolen or improvised nuclear device against the United States or its interests may not care about the resulting military repercussions following a nuclear attack. In such a scenario, some strategists think a terrorist organization's leadership may prove "undeterrable" by traditional military means. Nevertheless, deterrence is still a critical element in U.S. national strategy to prevent a nuclear attack. Furthermore, deterrence combined with dissuasion works to reduce the likelihood of nuclear terrorism being used against the United States, while also mitigating the consequences should such an act actually occur.

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## Introduction

Now that a decade has passed since the 9/11 attacks, it is worth contemplating the ever-growing possibility that terrorists, rather than a sovereign state, could trigger the first modern-day detonation of a nuclear weapon. For well over a decade, al-Qaida and similar violent extremist

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organizations have communicated their interest in using nuclear weapons against the United States or its allies. Even though this potential threat does not come from a nuclear-armed state, the risk of a future nuclear attack is real and menacing. Despite this fact, the means of deterring nuclear-armed terrorists and the role of the U.S. nuclear arsenal are largely misunderstood.<sup>2</sup>

Many strategists and policymakers continue to spend significant time and energy thinking about the possible actions of terrorists, including those who may become nuclear-armed. This is understandable considering there is enough weapons-usable nuclear material worldwide for an estimated 120,000 nuclear weapons, and much of this material remains unprotected.<sup>3</sup> Consistent with the view of many analysts, the 2010 U.S. National Security Strategy states:

"[T]here is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states."<sup>4</sup>

Al-Qaida and similar extremist organizations are considered the groups most likely to want nuclear weapons.<sup>5</sup> The Strategy goes on to note that securing vulnerable nuclear material is paramount because, according to current assessments, terrorists are determined to buy, build, or steal a nuclear weapon.<sup>6</sup> To address this threat, the United States is leading an effort to secure all vulnerable or loose nuclear material by the end of 2013.<sup>7</sup> Moreover, the international community has acknowledged the threat of nuclear terrorism. In April 2010, over 45 countries participated in the Nuclear Security Summit in Washington, D.C. in order to arrive at a common understanding about the threat of nuclear terrorism. A second summit will be held in the Republic of Korea in 2012.

Terrorists do not necessarily share the same goals or need the same capabilities as states. In many cases, a terrorist organization may consider a low-yield detonation a success for its intended purpose. According to estimates, a ten-kiloton nuclear detonation in an urban environment could kill tens of thousands of people and level buildings within half a mile, while structures between a half-mile and a mile away would experience significant destruction.<sup>8</sup> In general, a violent extremist organization may become nuclear-armed in primarily two ways. First, it may buy or steal a nuclear weapon that has fallen out of state control. Second, it may build an improvised nuclear device using widely distributed designs, after having acquired the necessary nuclear material to do so.<sup>9</sup> As has been said, nuclear material may be bought, stolen, or acquired in some other way.

With Pakistani nuclear scientist Abdul Qadeer Khan having transferred nuclear technology to Iran, North Korea, and Libya, some terrorist organizations may be able to more easily acquire the technology and material to fabricate an improvised nuclear device.<sup>10</sup> Acquiring nuclear material, however, is not the final step in an act of nuclear terrorism. A potential attacker must still have the expertise to assemble the nuclear device, transport and store it, get the weapon to its intended target, and achieve a nuclear detonation.

## Deterrence Theory

In a frequently cited definition, deterrence is "persuading a potential enemy that it is in his own interest to avoid certain courses of action."<sup>11</sup> The underlying tenet of nuclear deterrence theory, a subset of general deterrence, is that the credible and potentially overwhelming force of using nuclear weapons against any would-be adversary is sufficient to deter most potential aggressors from employing nuclear weapons. More importantly, it has been noted, "Given that deterrence can only work, when it does, in the minds of enemy leaders, it is their worldview, not ours, that must determine whether or not deterrence succeeds."<sup>12</sup> Therefore, to deter a potential adversary, we must deter its leadership.

At the heart of the nuclear deterrence concept lies a paradox. If nuclear weapons are used, deterrence has failed, and yet establishing a credible deterrence capability requires planning for its intended use. For the United States, it is only by maintaining an effective and credible nuclear strike capability and planning for its use against an adversary that deterrence is possible. Thus, some of the most destructive weapons of war—nuclear weapons—can, in fact, be used to promote peace and stability.

According to the "2010 U.S. Nuclear Posture Review Report," the primary role of the U.S. nuclear arsenal is to deter a nuclear attack on the United States, as well as on allies and partners.<sup>13</sup> It is therefore U.S. policy that as long as nuclear weapons exist, the United States will sustain a safe, secure, and effective nuclear arsenal, both to deter potential adversaries and to assure U.S. allies and other security partners they can count on America's security commitments.<sup>14</sup> Although the current U.S. administration wishes to reduce the country's nuclear arsenal, it is trying to do so without affecting the reliability and effectiveness of its nuclear weapons, including their deterrent effect.<sup>15</sup> Thus, nuclear weapons are still thought to play a fundamental role in deterring potential adversaries, especially those who are nuclear-armed.

But, alas, deterrence is at times limited. For example, when "the challenger is not dispassionate, well-informed, or reasonable, as frequently has been the case in historical experience, deterrence cannot be assumed to function predictably."<sup>16</sup> The theory of stable deterrence, used for decades during the Cold War, represents "an attempt at a Jominian solution to a problem that was essentially Clausewitzian in nature."<sup>17</sup> So while stable deterrence theory may be based on elaborate calculations meant to "ensure" that deterrence is achieved through the deployment, threat, or use of nuclear weapons, these sophisticated calculations and strategic analyses are at odds with the fact that most conflicts and crises are determined by the "attitudes, expectations, perceptions, and behavior of antagonists."<sup>18</sup> Additionally, when attempting to employ a deterrence strategy, the adversary's assessment of costs, benefits, and probabilities may often be misunderstood.<sup>19</sup>

The question is: "Can terrorists be deterred?" The Bush administration's National Security Strategy addressed this question by noting:

"Traditional concepts of deterrence will not work against a terrorist enemy whose avowed tactics are wanton destruction and the targeting of innocents; whose so called soldiers seek martyrdom in death and whose most potent protection is statelessness."<sup>20</sup>

Some critics of deterrence have argued that terrorists motivated by ideology and intending to use a stolen or improvised nuclear device against the United States may not care about the military repercussions; therefore, a terrorist organization's leadership may prove undeterrable by military means.

In contrast to this view, others have observed that the proposition that terrorist organizations and their leadership represent undeterrable foes seems at best a half-truth.<sup>21</sup> At times, and under the right conditions, the credible threat of overwhelming force may dissuade terrorist leadership from pursuing direct confrontation or initiating an attack.

## Law of Armed Conflict

Classical deterrence theory works only if there is a credible threat of retaliatory force. What is considered a credible use of force within the U.S. defense community is typically governed by the Law of Armed Conflict. While not directive or preventive of any future action, the ideas and

principles within the Law of Armed Conflict are relevant when considering a response to terrorism, including to the actions of nuclear-armed terrorists.

The Law of Armed Conflict has been defined as the part of international law that regulates the conduct of armed hostilities.<sup>22</sup> It is based on two main sources: customary international law arising out of hostilities and binding on all states; and international treaty law arising from international treaties, which binds only those states that ratified a particular treaty. The purpose of the Law of Armed Conflict is to reduce the damage and casualties of any conflict; protect combatants and noncombatants from unnecessary suffering; safeguard the fundamental rights of combatants and noncombatants; and make it easier to restore peace after the conflict's conclusion.

Of the principles contained in the Law, two are most germane to potential military actions following an act of nuclear terrorism. These are the principles of military necessity and lawful targeting. The first, military necessity, calls for using only that degree and kind of force required for the partial or complete submission of the enemy, while considering the minimum expenditure of time, life, and physical resources.<sup>23</sup> This principle is designed to limit the application of force to that required for carrying out lawful military purposes. Although the principle of military necessity recognizes that some collateral damage and incidental injury to civilians may occur when a legitimate military target is attacked, this does not excuse the destruction of lives and property disproportionate to the military advantage to be gained.<sup>24</sup>

The second principle, lawful targeting, is based on three assumptions.<sup>25</sup> First, a belligerent's right to injure the enemy is not unlimited. Second, launching attacks against civilian populations is prohibited. Third, combatants must be distinguished from noncombatants in order to spare noncombatants injury as much as possible. Consequently, under lawful targeting all "reasonable precautions" must be taken to ensure that only military objectives are targeted in order to avoid, as much as possible, damage to civilian objects (collateral damage) and death and injury to civilians (incidental injury).<sup>26</sup>

Key to applying the principle of lawful targeting is distinguishing between military objectives and civilian objects. Civilian objects include places of worship, schools, hospitals, and dwellings, but these can lose their protected status if they are used to support military action. While an attacker should not intentionally assault civilians or employ methods or means that would cause excessive collateral civilian casualties, a defender

is obligated to separate civilians and civilian objects from legitimate military targets. Failure to separate them may lead to a loss of their protected status.

## Discussion

The application of the principle of military necessity to any potential U.S. military response following an act of nuclear terrorism means that any military response, including nuclear, should not exceed the kind or degree of force needed to accomplish the military objective. Therefore, if a low-yield nuclear weapon is detonated within the United States, the most appropriate U.S. response to accomplish the military objective might be to employ a similar low-yield nuclear weapon. If, for whatever reason, a commensurate low-yield nuclear weapon was not readily available, national leadership likely would need to weigh other options for achieving the military objective, such as whether to employ a higher-yield nuclear weapon or conventional weapons with a similar kiloton destructive effect. A higher-yield nuclear response, however, could exceed the degree of force needed to accomplish the military objective and, therefore, be in violation of the Law of Armed Conflict. On the other hand, responding conventionally to a nuclear attack likely would limit future deterrence efforts.

In applying the principle of lawful targeting, the selected target for any nuclear response should be a military objective, in order to minimize collateral damage and incidental injury as much as possible. It is worth noting that in the latest Nuclear Posture Review statement, the United States renews its commitment

"to hold fully accountable any state, terrorist group, or other non-state actor that supports or enables terrorist efforts to obtain or use weapons of mass destruction, whether by facilitating, financing, or providing expertise or safe haven for such efforts."<sup>27</sup>

This statement threatens retaliatory force against either state or non-state actors. As others have noted, however, picking an actual target for a military response following an act of nuclear terrorism could prove problematic, since non-state-sponsored terrorists may not have clear geographic boundaries, making it difficult to avoid death and injury to civilians. This exact problem is why many strategists and policymakers have long argued that deterrence is ineffective against terrorist leadership, since a credible U.S. response following an act of nuclear terrorism may not be viable.



## Counterarguments

There are several possible counterarguments to the contention that deterrence is ineffective against terrorist leadership. Some might argue that the United States would not be bound by the Law of Armed Conflict following an act of nuclear terrorism because terrorists are unlawful combatants who do not, as a matter of course, follow its provisions. After all, unlawful combatants are by definition individuals who directly participate in hostilities without being authorized by a governmental authority, and non-state-sponsored terrorists fall in this category. Nevertheless, any U.S. response to an attack by nuclear-armed terrorists—that is, by unlawful combatants—should follow the Law of Armed Conflict's tenets. Indeed, the Law addresses terrorist actions by noting that unlawful combatants who engage in hostilities are in violation of the Law of Armed Conflict and in doing so become lawful targets. Consequently, they may be killed or wounded and, if captured, may be tried as war criminals for their actions.

Some critics might also argue that since nuclear terrorism is a form of asymmetric warfare, the United States must adapt any potential response by holding at risk those objects the terrorists value most. In the case of religious extremists, potential targets could include places holding special religious or cultural significance. Therefore, the argument goes, if non-state-sponsored ideological extremists attack the U.S. homeland with an improvised nuclear device, the United States should attack places of religious and cultural significance, including those within metropolitan centers. A credible threat of such a U.S. response against religious and cultural centers would therefore deter ideological extremists. Holding at risk a potential adversary's religious and cultural centers, however, goes against the principle of lawful targeting, since the response may not discriminate between military objectives and civilian objects, because the targeted places of worship and religious centers would be considered civilian objects under most circumstances. Even when considering the legitimate use of reprisals in response to enemy actions that are noncompliant with the Law of Armed Conflict, an act of reprisal still cannot deliberately target religious or cultural property.<sup>28</sup> If these objects are used for military purposes, however, they lose their immunity. Additionally, if these protected objects are located near lawful military objectives, which the Law of Armed Conflict prohibits, they may suffer collateral damage when the nearby military objectives are lawfully engaged.

## A Holistic Strategy of Prevention

The goal of a strategy seeking to prevent an act of nuclear terrorism is to cause a terrorist organization's leaders to determine that such an act will fail in achieving their desired objectives and, therefore, decide not to pursue the nuclear attack. While the credible threat of a military response is necessary for effective deterrence, any means available to support this goal of prevention is a viable component of a suitable strategy. Other suitable means could include nonmilitary activities if they support discouraging a potential adversary from pursuing an act of nuclear terrorism. Thus, an overall strategy of prevention should use both military and nonmilitary approaches that include integrated and layered activities. Such a strategy represents a more holistic approach to dealing with the threat of nuclear terrorism. The military and nonmilitary activities supporting the goal of prevention can be categorized as "deterrence" and "dissuasion."

### *Deterrence*

The first step in establishing the most effective U.S. prevention strategy possible is "relearning" that deterrence remains a viable concept, even when attempting to address the threat of nuclear terrorism. Many terrorist organizations, including al-Qaida, function strategically and rationally.<sup>29</sup> Consequently, deterrence is still viable. There is nothing within the Law of Armed Conflict that explicitly prohibits a U.S. nuclear response to an act of nuclear terrorism, even one that is non-state-sponsored. As long as the principles of military necessity and lawful targeting are duly considered, a nuclear response would still be a viable option. For example, such an option would exist if, following a low-yield nuclear detonation by terrorists within the U.S. homeland, a suitable military objective can be targeted using a U.S. nuclear response of degree and kind needed to achieve the military objective. This is not to say significant diplomatic efforts will not be needed before any U.S. nuclear response, especially since the military objective to be targeted will be located within the borders of a sovereign state. In the end, the highest levels of national leadership, including the president, would have to approve any nuclear response. Also worth noting is that a possible U.S. nonnuclear response to nuclear terrorism can also have a deterrent effect. By conducting persistent and aggressive counterterrorism operations to seek out the most militant terrorist organizations, the United States can increase a potential adversary's perception that there would be a credible threat of force following any attack against the United States. If al-Qaida's leadership believed that following an act of nuclear terrorism the United States

would systematically seek them out and, through nuclear or conventional means, threaten their survival, they might be deterred from employing a nuclear weapon or an improvised nuclear device.

In the case of state-sponsored nuclear terrorism, the knowledge that the United States has the option to respond in kind to a nuclear attack can increase the likelihood of deterring states that knowingly provide a terrorist organization with, or the opportunity to acquire, a nuclear weapon or nuclear material for an improvised nuclear device. Therefore, in the effort to "hold fully accountable" any state that enables terrorists to obtain, or that facilitates the use of, nuclear weapons against the United States or its interests, the U.S. response against the complicit state may include a nuclear option. While the problems inherent in selecting a suitable military objective associated with an act of non-state-sponsored terrorism have been noted, these problems are mitigated in a scenario involving a supporting or facilitating state, because there are clear geographic boundaries, and reasonable precautions may be taken to help ensure that collateral damage and incidental injury are avoided as much as possible.

### *Dissuasion*

The other piece of the strategy puzzle, dissuasion, aims to use a targeted strategy and policy to cause countries or potential adversaries from initiating military action.<sup>30</sup> To be effective, dissuasion activities must occur before a threat manifests itself. "Shaping activities," typically nonmilitary in scope and conducted during peacetime, are included in activities meant to dissuade potential adversaries.<sup>31</sup> In the context used within the U.S. military services, dissuasion works outside the potential threat of military action.<sup>32</sup> Dissuasion of current or potential nuclear-armed adversaries therefore seeks to convey the futility of using or proliferating nuclear weapons or nuclear material.<sup>33</sup> It does so with the intent of causing a potential adversary to forgo a path leading to military confrontation. Some think that those dissuaded from competing with the United States should not need to be deterred.<sup>34</sup> With respect to dissuading a terrorist organization from acquiring nuclear weapons, such an approach should focus on four aspects: interdiction, consequence management, nuclear forensics, and monetary interception.

Interdiction efforts meant to counter the proliferation of nuclear weapons or nuclear material can succeed in thwarting a potential attacker. A significant capability in intelligence collection, detection, and identification can help discriminate a potential threat from nonthreatening materials coming through ports or across borders. Surveillance supporting nuclear interdiction efforts can focus on known transit and smuggling routes,

monitor choke points of commercial trade, and utilize standoff nuclear detection technology. All of these interdiction activities are meant to impede the proliferation of nuclear weapons or nuclear material, as well as slow and make more costly access to sensitive technologies, material, and expertise.

Preparations in consequence-management efforts, such as those dealing with emergency medical response, humanitarian assistance, and disaster relief operations following an act of nuclear terrorism, could make a valuable difference in the level of societal destruction and personnel casualties. These preparations seek to mitigate the consequences of an act of nuclear terrorism. In cases where it is questionable whether a nuclear-armed terrorist group can be deterred, past analyses suggest that a relatively austere emergency medical response, humanitarian assistance, and disaster relief measures can provide the highest initial return on the dollar for protection across a broad spectrum of plausible nuclear threats. Some have estimated that it may be possible to turn the death rate from ninety percent to twenty or thirty percent simply by being well-prepared in advance for a potential nuclear event.<sup>35</sup> To minimize the impact of a nuclear terrorist attack, the U.S. National Response Framework and other documents outline interagency roles and responsibilities to guide consequence-management activities. Post-detonation consequence-management activities, which would be conducted concurrently with any civil-military humanitarian assistance and disaster relief operations, include securing the incident site, assessing the radioactivity at the site, enhancing first responder capabilities, providing radiological medical triage capabilities, and increasing population resilience and recovery capabilities.<sup>36</sup>

Developing a responsive nuclear forensics capability is the third aspect of dissuading nuclear terrorism. Nuclear forensics is the science of determining the source and pathway of a nuclear weapon or nuclear material after it is interdicted or detonated. Following a nuclear or radiological attack, post-detonation nuclear forensics activities likely will be under pressure and time constraints to perform quickly. The Nuclear Forensics and Attribution Act seeks to strengthen U.S. Department of Homeland Security efforts to develop nuclear forensics capabilities that would help attribute the source of nuclear material.<sup>37</sup> A robust and well-known capability to identify the source of nuclear or radiological material intended for, or used in, an act of terrorism could, it is thought, dissuade prospective proliferators or those supporting nuclear terrorism.<sup>38</sup> Furthermore, the threat of effective attribution following the science of nuclear foren-

sics could lead to improved security at other countries' nuclear material storage facilities, thereby preventing the unwitting transfer of nuclear or radiological materials.

The last aspect of dissuading nuclear terrorism involves aggressive efforts to intercept and minimize funding sources used by militant extremist groups. Funding is critical to sustaining the activities of most terrorist organizations. In the past, such funding has come through charities, illegal activities, and front companies. Persistent multinational fiscal-interdiction efforts could significantly reduce the funding available to support any potential nuclear terrorism activities. These monetary interception efforts could include targeting transactions supporting terrorist organizations, whether conducted by states, nongovernmental organizations, or private entities. Economic efforts to thwart nuclear proliferation might focus on the potential suppliers of nuclear or radiological material.<sup>39</sup> A sustained effort to eliminate or minimize funding sources used by terrorist organizations could help curtail future recruits for the organization's cause. This in turn might lead to a sense of futility within the organization. Combined monetary efforts such as this could dissuade a terrorist organization's leaders from pursuing a path of direct confrontation through nuclear terrorism.

## Conclusion

In today's security environment, the threat of nuclear terrorism remains a persistent concern. While some strategists and policymakers have opined that nuclear-armed terrorists are undeterrable and deterrence is ineffectual against non-state actors, the demise of deterrence's role in U.S. strategy has been overstated. Because the leaders of most terrorist organizations, including al-Qaida, are rational and function strategically, they can, in fact, be deterred to some degree. Moreover, when dissuasion works with deterrence as part of a broader strategy of prevention, the United States is better able to employ a holistic approach that seeks to cause a violent extremist organization's leaders to decide for themselves not to pursue an act of nuclear terrorism.

To be capable of deterring a range of potential threats, the United States must maintain an effective and tested nuclear arsenal, which frequently will require modernization. Furthermore, the country must have a suitable range of nuclear weapons that can deliver minor to severe military damage, depending on the scenario. Considering the Law of Armed Conflict's implications, the U.S. nuclear arsenal should include low-yield weapons in order to give the president the best range of response options

to an act of nuclear terrorism. If tactical, low-yield nuclear weapons are not maintained in the arsenal, it will be harder to convey to a would-be aggressor that the United States has a credible nuclear response to an act of nuclear terrorism using a low-yield weapon or improvised nuclear device. While the present U.S. administration advocates retaining and modernizing some of the lowest-yield nuclear weapons, implementing the plan remains uncertain because of continuing budgetary pressures.

History suggests that deterrence will at times fail due to miscalculation, uncertainty, or chance. This may also be the case for deterrence of nuclear-armed terrorists. If deterrence fails and an attack occurs, having aggressive programs in place to manage the consequences of a nuclear detonation could reduce or limit the damage. A side benefit of a strategy incorporating nuclear deterrence and dissuasion against nuclear terrorism is that potential nuclear-armed adversaries may be deterred or dissuaded because they know the United States can offer a decisive military response, while managing the consequences of a nuclear attack and investigating and determining the attack's source if not immediately known.

A strategy incorporating both deterrence and dissuasion can make great strides in preventing an act of nuclear terrorism, but only if national leaders make it a top priority. Many Americans regret that more was not done to improve counterterrorism capabilities and strategies before the 9/11 attacks, especially since many of the needed improvements seemed obvious afterwards. Similarly, the United States needs a sound and comprehensive strategy to deter and dissuade nuclear terrorism. To wait until after such an attack would be unforgivable.

## About the Author

John J. Klein is a senior analyst at ANSER in Arlington, Virginia. He holds a Ph.D. in politics, with a strategic studies focus, from the University of Reading and a master's in national security and strategic studies from the U.S. Naval War College, where he was a Mahan Scholar. He previously served as a Federal Executive Fellow at the Brookings Institution in its Foreign Policy Studies program. Dr. Klein has served as a Countering WMD Planner for the last four years, and writes frequently on national policy, military strategy, and the implications of the Law of Armed Conflict. The author may be reached at: [john.klein@anser.org](mailto:john.klein@anser.org).

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- 23 U.S. Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP 1–14M (Washington, DC: July 9, 1995), 6–5.
- 24 Ibid. This concept is also referred to as the principle of proportionality.
- 25 Ibid., 8–1. This is also referred to as the principle of distinction.
- 26 Ibid. From paragraph 8.1.1, "Military objectives are combatants and those objects which, by their nature, location, purpose, or use, effectively contribute to the enemy's war-fighting or war-sustaining capability and whose total or partial destruction, capture, or neutralization would constitute a definite military advantage to the attacker under the circumstance at the time of the attack." From paragraph 8.1.2, it is stated, "Civilian objects consist of all civilian property and activities other than those used to support or sustain the enemy's war-fighting capabilities. Attacks on installations such as dikes and dams are prohibited if their breach or destruction would result in the loss of civilian lives disproportionate to the military advantage to be gained. Similarly, the intentional destruction of food, crops, livestock, drinking water, and other objects indispensable to the survival of the civilian population, for the specific purpose of denying the civilian population of their use, is prohibited."
- 27 Department of Defense, *Nuclear Posture Review Report*, vii.
- 28 Reprisals are acts in response to Law of Armed Conflict (LOAC) violations. The LOAC permits combatants to engage in acts of reprisal to enforce an enemy force's compliance with LOAC rules. The act of reprisal would be forbidden, if it were not for the enemy's prior unlawful act. A lawful act of reprisal cannot be the basis for a counter-reprisal. Reprisals are always prohibited if directed against POWs; wounded, sick, or shipwrecked persons at sea; civilians and their property; or religious or cultural property. To be lawful, a reprisal must be a timely response to grave and manifestly unlawful acts; serve not as an act of revenge, spite, or punishment but rather as a means of compelling an adversary to observe the LOAC; give reasonable notice that reprisals will be taken; follow other reasonable attempts to secure compliance; be directed against the personnel or property of an adversary; be proportional to the original violation; be publicized; and be authorized by national authorities at the highest political level.
- 29 Gray, *National Security Dilemmas*, 72.
- 30 Department of Defense, *Annual Report to the President and the Congress* (Washington, D.C.: 2002), 18.



- 31 Chairman, Joint Chiefs of Staff, *Combating Weapons of Mass Destruction*, JP 3–40 (Washington, D.C.: Department of Defense, June 10, 2009), x.
- 32 In other countries' joint doctrines, "deter" and "dissuade" are mostly synonymous. In the United Kingdom's Ministry of Defence joint doctrine publication on Joint Operations, deter is defined as "[t]o dissuade an adversary from a course of action that he would otherwise embark upon by diminishing his expected gains and/or raising his expected costs." See Ministry of Defence, *Joint Operations*, Joint Doctrine Publication 01 (London, UK: March 2004), I–7.
- 33 Chairman, Joint Chiefs of Staff, *Combating Weapons of Mass Destruction*, I–3.
- 34 Gray, *National Security Dilemmas*, 59.
- 35 Cham Dallas, quoted in "Study Finds U.S. Not Ready for Nuke Hit," *The Washington Times*, March 21, 2007. The study referred to is presented in William C. Bell and Cham Dallas, "Vulnerability of Populations and the Urban Health Care Systems to Nuclear Weapon Attack—Examples From Four American Cities," *International Journal of Health Geographics* 6:5 (February 28, 2007).
- 36 Department of Defense, *The Nuclear Matters Handbook*, 89.
- 37 U.S. Congress, House, "Nuclear Forensics and Attribution Act," 111th Congress, 2nd sess. (January 22, 2010), available at: <http://www.govtrack.us/congress/billtext.xpd?bill=h111-730>.
- 38 Ibid.
- 39 "Dissuade WMD suppliers from participating in proliferation activity through coordinated diplomatic, economic, and information campaigns." Chairman, Joint Chiefs of Staff, *Combating Weapons of Mass Destruction*, x.

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