Integrating Counterproliferation into Defense Planning

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The United States has long sought to halt the spread of nuclear, biological, and chemical (NBC) weapons (also called weapons of mass destruction, or WMD). It has met with substantial success, particularly on the nuclear front. Yet, today, two developments have reshaped the counter-proliferation challenge for U.S. defense planning. The first is that many nations either have or could have NBC weapons. The second is the United States’ success in waging conventional war. Researchers from the National Defense Research Institute and senior policymakers from the Department of Defense recently met to discuss the implications of these developments for defense planning.

Both developments bespeak a greater risk that U.S. forces may face WMD in future conflicts. Potential regional foes are producing such weapons, and North Korea appears to be training to use them. Furthermore, the United States must contend with the consequences of its own success. Because it has become so dominant in waging conventional war, only a fool would repeat Saddam Hussein’s mistake and directly engage the United States. Any future adversary will most likely employ asymmetric strategies, prominent among which will be NBC weapons, especially chemical and biological ones. Threat of their use—or actual use—will occur from the start of any campaign. In response to an adversary’s use of asymmetric strategies, the U.S. Department of Defense has turned to counterproliferation strategies, which seek not only to limit the proliferation of NBC weapons but also to counter attacks from those weapons or threats of such attacks.

So far, work on counterproliferation, both inside and outside the Pentagon, has been conducted separately from planning for conventional forces. The work on counterproliferation, however good, has remained in its own ghetto for reasons that are not difficult to find. Integrating counterproliferation into defense planning is messy and awkward, because being serious about such integration competes with spending money on other highly valued items, such as firepower. More awkward still, it raises hard questions about how the United States plans to conduct operations in regional contingencies.

Small wonder, then, that military operators and planners are tempted to wave away the problem. One wave implies, “They wouldn’t dare!” without, however, specifying exactly why potential foes would be deterred from brandishing NBC weapons (a nuclear-weapon response is the implied threat). The other wave says, “If they do use NBC weapons, we’ll be out of there,” without completing the argument about how U.S. interests might be affected by a hasty departure of U.S. troops from the field of battle.

This paper argues that neither version of waving the problem away is tenable. How the shadow of NBC weapons might fall is not certain, but that it will be present from the beginning of any crisis is. NBC weapons offer regional foes a way not merely to harass the United States but an opportunity to defeat U.S. strategy, whose linchpin is power projection. Responding to the challenge means not just acquiring a few more chemical protective suits; rather, it means reshaping the ways the United

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Defense Issues reports on the proceedings of a series of conferences held to address issues of importance to the Quadrennial Defense Review. The views and conclusions expressed here summarize those of the conference participants, who were senior members of the Department of Defense and RAND. They do not necessarily represent those of RAND or its research sponsors.
States conceives and implements its projection of military power. Planning under the shadow of WMD is no longer an esoteric contingency; it is the contingency. This paper first recapitulates the threat, then spells out implications of the threat for acquiring weapons and, especially, for planning for projecting U.S. military power far from U.S. shores.

WHAT THE REVOLUTION IN MILITARY AFFAIRS MEANS TO POTENTIAL FOES

Today’s American arsenal of sensors and standoff weapons makes the phrase “Revolution in Military Affairs” no mere hyperbole. The United States seems poised for another leap forward both in its technology and in its capacity for integrating that technology into operations. Its lead over would-be adversaries on this new frontier of conventional battle is widening. Analysis, by RAND and others, has confirmed what Operation Desert Storm demonstrated: Potential regional adversaries, principally Iran, Iraq, and North Korea, cannot expect to win a conventional war of conquest with the United States and its regional allies. They might obtain limited objectives by surprise, but could not hold their gains using only conventional weapons against a coalition counteroffensive, any better than Iraq did in the Persian Gulf War.

Consider two straightforward Persian Gulf scenarios, those of an adversary seeking to capture oil-rich areas—the first, another Iraqi attack on Kuwait; the second, an Iranian seizure of Abu Dhabi, which controls most of the United Arab Emirates’ oil. Either conquest would leave the attacker controlling more than one-fifth of the world’s proven oil reserves.

In the first scenario, Iraq could recapture Kuwait if it achieved enough surprise. However, it could not capture both Kuwait and the oil-rich part of the Saudi Eastern Province, even under very favorable circumstances—for instance, if supported by Iran and if the United States were diverted by another major regional conflict (MRC) in Korea. Iraq would need to reach about as far as Dhahran within two weeks. During that time, the U.S.-led coalition’s principal counter would be air power, working in coordination with Saudi ground forces.

Figure 1 shows that as long as U.S. aircraft are able to kill approximately one combat vehicle per sortie (which advanced weapons should be able to achieve against exposed, attacking Iraqi forces), Iraq would have to suppress 50 percent or more of the U.S. and allied sorties to reach the Saudi coast (the medium gray arrow on the map and the area in the middle of the graph), and would have

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**Figure 1—The Challenge for Iraq**
to suppress 80 percent or more of the sorties to reach Dhahran or beyond (the light gray arrow on the map and the area in the upper-left of the graph).

Conventional attacks on airfields and other measures that Iraq might apply are unlikely to disrupt U.S. and allied sorties by more than 10 to 20 percent—well short of the 80 percent needed for a successful seizure. Thus, for Iraq to take on the United States and its allies in a conventional battle would be a losing proposition. Desert Storm was mostly an old-fashioned tank war, but it was also a foretaste of the new technologies that are to come.

FROM DESERT STORM TO ASYMMETRIC STRATEGIES

If Iraq cannot afford to create the military forces required to confront the United States directly, neither can other would-be adversaries of the United States in regional conflicts. Those forces must reach for asymmetric responses. NBC weapons—and especially chemical or biological ones (CBW)—would be prime candidates in such an asymmetrical confrontation with America’s military might.

NBC weapons are asymmetric because the United States has supported the Chemical and Biological Weapons Convention and has eschewed either type of weapon. Its potential regional foes, by contrast, are deeply engaged in producing such weapons, and at least North Korea appears to be training to use them. The size of their chemical arsenals and the development of delivery systems hint at not just a token but an operational capability.

Unclassified estimates put Iran’s current chemical weapons (CW) inventory at 2,000 tons or so; North Korea’s inventory may be as much as 5,000 tons. These numbers are about one-fifteenth and one-sixth of total U.S. stockpiles, respectively—far larger than would be required simply for strategic or coercive purposes.

These nations’ parallel interest in delivery systems to match their arsenals of weapons also implies an operational goal. Both North Korea and Iran have aggressively pursued ballistic missiles; their inventories are large and growing, and efforts are under way to field new systems that could reach beyond 500 km. The bulk of their inventories is based on old Scud technology, but both countries have interest in and access to technologies that would improve ballistic-missile accuracy and provide submunitions for better CBW delivery. North Korea has also acquired long-range artillery that could deliver CBW, especially its 240mm multiple rocket launcher.

Because the U.S. strategy for regional conflicts turns on projecting power, it thus presents tempting targets for CBW attacks at points where U.S. or allied forces mass and stage. The strategy also presents foes with opportunities to attack civilian populations—those of allies or, conceivably, Americans abroad or at home. Table 1 catalogs these vulnerabilities.

The potential effects of CBW attacks on airlift and sealift are dramatic. For example, to degrade air operations with CW, an adversary would need to deliver only about 500 to 2,000 kilograms (kg; 0.5 to 2 tons) of a chemical weapon, such as the nerve gas sarin or VX, by ballistic or cruise missiles or aircraft. As little as 5 to 10 kg of a biological agent such as anthrax could cover most of an airfield if delivered appropriately—for instance, sprayed by

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<td><strong>Potential Vulnerabilities of U.S. MRC Strategies</strong></td>
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1 "Tehran may have produced up to 2,000 tons of chemical agents, including mustard, cyanidol and possibly sarin nerve gas. It may also be researching anthrax and botulin toxins." Michael S. Lelyveld, "Report: Iran Has Huge Weapons Stockpile," *Journal of Commerce*, March 29, 1996, p. 1/3. "The agency [CIA] also disclosed that the regime [Iran] has a chemical weapons stockpile of several thousand tons of CW agents including sulfur mustard, phosgene and cyanide agents, and Tehran is capable of producing 1,000 tons of these agents each year."

2 "Chemical weapons can be delivered by virtually all DPRK fire support systems. This includes most artillery, multiple rocket launchers (including those mounted on CHAHO-type boats), mortars, FROG and SCUD missiles, and some bombs." Defense Intelligence Agency, *North Korea Handbook*, Washington, D.C., 2601-6421-94, 1994, p. 3-16.
special operations forces (SOF) or from cruise missiles. For biological weapons (BW), moreover, the first problem is detecting an attack in time to take protective action.

Combined-arms CBW attacks could worsen the effect. Special forces might first suppress airfield defenses, destroying Patriot radars and damaging decontainment facilities. The CBW attack could then proceed, followed by the use of shoulder-fired surface-to-air missiles (SAMs) and other standoff weapons to limit access into the airfield.\(^3\) Alternatively, a nonlethal BW agent could first be used by adversary special forces, then the airfield could be held hostage because sick personnel would have difficulty using clothing designed to protect against CBW.

Forces under CW attack need to wear full individual protective suits (MOPP 4) until the agent has evaporated or dispersed. Off-duty personnel need safe places in which to sleep and eat—places referred to as “collective protection” facilities or “clean” areas. Repeated CW attacks require continuing protection. They raise harder problems of decontaminating or replacing suits and keeping clean facilities clean.

Even if coalition forces are protected, CW attacks degrade their operations. In cold weather, the effect of having to work while wearing protective suits is relatively small. In hot weather, it is not: With current MOPP 4 suits, the loss of sorties can be 80 to 90 percent; with the improved protective suits, designated JSLIST, the loss of sorties still runs as high as 50 percent. Moreover, these effects have been estimated from exercises in which there was no CW threat and so probably understate the real effects. It is one thing to exercise in MOPP gear in a benign environment but quite another actually to fight in a contaminated one, in which a displaced mask or a torn suit could mean death.

Nor would potential foes necessarily have to use CBW to disrupt U.S. strategy. They could make threats in the hope of coercing U.S. allies. In the short run, for instance, Iraq might threaten CBW attacks on Saudi Arabia unless it denied the United States permission to operate from its soil if Iraq attacked Kuwait. If Saudi Arabia denied the United States access to its bases, the United States would face unpleasant options: seize Saudi facilities anyhow, operate from the sea, or not counterattack at all, granting the Iraqis victory by default.

A more subtle, longer-term strategy might not require brandishing CBW in a crisis. Over time, simply advertising its CBW capabilities while reminding neighbors that they would be targeted if they sided with Iraq’s enemies might be enough; a demonstration or two, perhaps conducted through terrorist groups to avoid direct Iraqi complicity, would underscore the point.

In all these ways, the future will not resemble Desert Storm, during which the United States could isolate the conflict regionally, bring its superior conventional forces to bear, and dominate any potential for escalation. Even then, Iraqi Scud attacks on Israel threatened to widen the conflict. In the future, the United States will not be able to depend on sanctuaries; ports and airfields, perhaps including those in the United States itself, will be vulnerable. To be sure, any attacks on U.S. civilians would carry high risks for potential foes, who would find it hard to reckon whether they would produce a “Pearl Harbor” or a “Beirut”—whether U.S. public opinion would galvanize against the foe or clamor to cut losses in a conflict that seemed far away and of little importance.

### INTEGRATING THE RESPONSE

Responding to the proliferation challenge requires both an integrated strategy, ranging anywhere from trying to prevent proliferation in the first place all the way through seeking to deny any adversary the gains it hopes to achieve with weapons of mass destruction, and integrating counterproliferation into defense planning. Defenses, both active and passive, have critical roles to play in the short run. Over the long run, however, what is required are far-reaching changes in the way the United States projects military power. Deterrence will be surer if the United States is prepared not just to retaliate against any use of CBW but also to deny a foe gains from using those weapons—by presenting fewer tempting targets, by preparing to fight from a standoff position, and by using newer approaches, such as information warfare.

Figure 2 shows that an integrated counterproliferation strategy would include five elements: prevention, defense, revised operations, retaliation, and sanctions.

### Prevention and Sanctions

Preventing the spread of NBC weapons makes up the by-now-traditional agenda of nonproliferation. Although it remains important, we do not discuss it here, in part because the potential adversaries of concern have already

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\(^3\)Terrain affects the options for combined-arms attacks: The combinations suggested here are more likely in the forests of Korea than in the deserts of Saudi Arabia.
developed chemical and biological weapons. By the same token, the threat or use of sanctions is an important tool in the counterproliferation arsenal. It deserves more attention than it has received, but it is not discussed here because it is of less direct relevance to the Defense Department.

Defense

Counterforce (also called attack operations), active defenses, and passive defenses are the traditional pillars of defense. The broad defense mission is complicated because the United States would need to protect military and civilian personnel, both its own and those of its allies.

Counterforce. In counterforce, the weapon stockpiles themselves, the systems that would be used to deliver CBW (for example, ballistic missiles and their launchers), and the command, control, communications, computer, and intelligence (C4I) systems supporting them, are attacked—attractive in principle, but difficult in practice.

Finding and killing adversary missile launchers is no simple feat: Counterforce missions against Iraqi ballistic-missile launchers proved extremely difficult in the Persian Gulf War, and such missions against cruise-missile launchers promise to be even more challenging, because the launches do not display an obvious track back to the launcher.

RAND's modeling of possible North Korean chemical attacks testifies to just how difficult countering them can be. In RAND's modeling, the United States and its allies had to destroy 80 to 90 percent of the North Korean tactical ballistic- and cruise-missile launchers to make much difference. That unhappy result ensued because North Korea could concentrate its missile attacks in the first days of the conflict, when the United States would find it difficult to mount counterforce attacks because of competing missions, such as suppressing enemy air defenses. Thereafter, North Korea could keep allied bases under pressure with relatively few launches per day. And since each launcher could fire several missiles a day, not many launchers would be required. Moreover, if the North Korean attacks on air bases did seriously degrade opera-

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4Assume, for example, that North Korea has ten ballistic missiles per launcher. It could easily fire half of those in the first three days of a conflict, leaving only four or five per launcher to cover the remaining 20 days or more of conflict. On average, then, North Korea would thereafter be launching only about one-fourth of a missile or less per launcher per day, and since each launcher ought to be able to fire several missiles per day, this launch rate could be sustained with a very small number of launchers, if North Korean C4I is effective in getting the needed target information to the surviving launchers.
tions, all U.S. missions would be in short supply, including counterforce.

Counterforce attacks on targets other than the launchers may not have much effect on the adversary's use of CBW. For instance, if CBW had already been loaded into weapons and paired with launch systems, destroying the remaining stocks might have little effect on the conflict other than to cause substantial collateral damage (which might even reach friendly territory)—raising questions about who actually used CBW.5

Indeed, since the United States plans a counteroffensive as the core of its MRC strategy, would-be adversaries could use their own CBW stocks as "hostages" to complicate U.S. and allied offensive operations. The United States is working on weapons that can more safely destroy CBW stocks by rendering the agents harmless before they can be released, and such weapons need to be fully developed and fielded.

By the same token, attacks on enemy C4I will have only modest effects if the adversary has preplanned its CBW attacks, delegating execution to lower echelons. Still, without centralized C4I, the foe will be less able to adjust its attacks on the basis of any new intelligence it receives about the battlefield situation, and so its overall assault will be less damaging.

Doing better at counterforce goes against the understandable reluctance to attack early in the conflict; and it also competes with other missions early on. The U.S. Navy's approach to anti-submarine warfare (ASW) suggests an approach that could be taken for achieving counterforce competence: Counterforce against adversary missiles could follow procedures similar to those used in ASW: "The US Navy's ASW procedures are often divided into five categories: (1) the continuous collection and analysis of intelligence on all known platforms; (2) continuous modeling of all probable launch areas; (3) generation of cueing (warning) when specific platforms move to a launch status; (4) the localization of specific systems; and (5) attack."6 The Navy closely watches enemy submarines and trains its forces in the process of that monitoring. By analogy, U.S. forces would develop a better understanding of adversary missile operations by monitoring them closely on a daily basis; and the various U.S. forces that would be involved in counterforce would train as part of that daily monitoring.

Active Defense. The United States and its allies have good defenses against enemy tactical aircraft, but those defenses do not yet offer much protection against adversary theater missiles: Witness the Persian Gulf War. Active defense is no panacea, but accelerating work on it is a priority.

The current U.S. approach is a layered defense, which is intended to hedge against the uncertainties in any given layer, thereby reducing the cumulative chance that an enemy missile might penetrate to the target; the layering also hedges against the chance that a foe might find a counter for any particular layer. Ideally, the first layer would have the most interceptors, because it could engage all adversary launches; to engage those missiles surviving the first layer, the next layer would have somewhat fewer interceptors; and so on. To counter ballistic missiles, the layers would run from boost-phase intercept (e.g., an airborne laser), to an area defense (e.g., Theater High Altitude Air Defense [THAAD] and Navy Upper-Tier systems), to terminal defenses (e.g., Patriot and the Navy Lower-Tier system).

Of these, only the current generation of Patriot is available today; most of the other components are scheduled to become available within the next decade or so. But even Patriot is in short supply. For the 11 main operating air bases in Korea, for instance, the United States stations only one Patriot battalion there: 6 batteries are able to protect only 3 bases. And given the competition for airlift, the next Patriot battalion cannot be counted on to arrive until about 25 days into a full deployment.

Moreover, RAND's Korean modeling suggests that early THAAD deployments will be too small to provide a full upper-layer defense; THAAD may be able to defend only some areas. An insufficient upper layer forces the commander to decide what targets to protect. Would-be foes will also try to counter U.S. and allied defenses with submunitions on ballistic missiles, thus presenting Patriot, and maybe even THAAD, with many targets per incoming ballistic missile. As a result, alternatives for the first layer of ballistic-missile defense—for instance, a combination of

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5In World War II, the German Air Force attacked the port of Bari in Italy and destroyed a merchant ship carrying a large number of bombs filled with mustard gas. For some time, it was not known that mustard gas was involved in that disaster, and then there was some uncertainty about whether the Germans had used mustard gas or whether it had been on one of the ships destroyed.

ascent- and boost-phase intercepts by manned aircraft—need to be pursued in the short term.  

Against cruise missiles, the key tasks for defense are surveillance (finding a small, low-flying missile that is difficult for radar to distinguish from ground clutter), identification (knowing the target is an adversary cruise missile and not a friendly aircraft), and engagement (being able to shoot down the missile). The United States is working on each of these tasks, but it does not yet have adequate capabilities for any of them. Fortunately, few if any land-attack cruise missiles appear to have been fielded by likely regional adversaries. However, several countries, including North Korea, are working on unmanned aerial vehicles (UAVs) that might be adapted for cruise-missile uses or used as decoys.

Moreover, the kind of “full dimensional protection” envisioned in the Chairman’s Joint Vision 2010 will require dealing with enemy efforts to suppress U.S. defense—for instance, with special operations attacks on Patriot radars or other components. Patriots deployed on an air base are usually regarded as protected by the base’s own security detachment. But that detachment normally operates inside the airfield fence line, leaving systems such as Patriot vulnerable to standoff weapons. As part of the airfield force package deployed in either peacetime or war, therefore, the United States needs to look at fielding counter-infiltration forces, much as do its Korean allies.

**Passive Defense.** For the immediate future, passive defenses must bear the brunt of dealing with the threat of CWB, coping with substantial leakage through counterforce and active defense. *Passive defense* is a package of measures: (1) individual and collective protection, (2) medical treatment, (3) facility and equipment protection, and (4) decontamination. No measure by itself is sufficient.

The priority for the first measure is accelerating procurement of the new JSLIST suits, which permit much less degradation of operations under CW attack than MOPP 4 suits, and encouraging allies to buy the suits as well. Collective protection, which is underemphasized in current programs, can make a difference also in work areas (for example, at airfields, ports, or logistics facilities), potentially removing the need for protective clothing and so making operations far more effective.

The United States also needs to be concerned about protecting civilian populations. For example, there has been virtually no discussion anywhere of protective clothing for children. In attacks against airfields near cities, the CWB from an adversary’s ballistic missile or other delivery system could spread well beyond the field’s fence, causing huge civilian casualties. U.S. regional allies need to develop civil-defense programs to help protect civilians. And the United States needs to take CWB threats within the United States seriously; the U.S. Marine Corps has recently set up a team to deal with CWB problems—a mere start.

For BW, medical treatment first requires detecting when an airfield is under attack and by what agent. Systems that detect BW agents in time to protect against infection are in advanced development, and newly available systems already allow detection soon enough to treat infections. A complement to warning is vaccination, an option that is being discussed by the Defense Department to deal with anthrax, one of the most lethal of BW agents. But the threat is hardly limited to anthrax. Vaccines against a range of BW agents need to be developed and stockpiled. To date, Pentagon studies of casualties in major regional conflicts have generally assumed that adversaries would not use CWB. These studies need to be redone to assess medical requirements in light of CWB attacks.

Facility and equipment protection involves preventing CWB from contaminating these items. Most facilities and equipment are not directly damaged by CWB (although some can be); rather, once contaminated, they cannot be easily used by personnel (personnel must wear protective clothing) until the contamination weatherizes. Tents and other coverings can provide much of the needed protection.

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7 A series of such options is discussed in David R. Vaughan, Jeffrey A. Isaacson, and Joel S. Kvitky, *Airborne Intercept: Boost- and Ascent-Phase Options and Issues*, RAND, Santa Monica, Calif., MR-772-AF, 1996. While the geographic ranges for these options are somewhat limited, they appear highly appropriate for a theater like Korea, and could potentially be available by the turn of the century.

8 North Korea has also recently emphasized selected technological improvements in developing and testing unmanned aerial vehicles and drones. These vehicles may be equipped with cameras for surveillance or target acquisition or launched as decoys to fool enemy radars.” Defense Intelligence Agency, *North Korea: The Foundations for Military Strength—Update 1995*, Washington, D.C., 1996, p. 21. “The North Koreans have procured UAVs and they intend to make them operational, according to a senior Pentagon official... Some analysts worry that the UAVs might even be used as a poor man’s cruise missile to deliver radioactive waste and biological agents or nerve gas. The North Korean UAVs are European-made...” *Aviation Week and Space Technology*, October 14, 1996, p. 25.

Two kinds of problems bedevil current decontamination procedures. Fully treating key operating areas requires large quantities of decontaminant (some 80 tons of supertropical bleach [STB] to decontaminate a 10,000-foot by 150-foot runway). But the most effective decontaminants are highly corrosive and thus harm many kinds of equipment and other surfaces. Further research is required on advanced decontaminants; decontamination doctrine requires reexamination as well.

RAND has priced a package of passive-defense improvements that would make a significant difference by early in the next century—at several billion dollars beyond expenditures currently planned. That package would also emphasize understanding the threat better by war-gaming how a potential foe might attack, seeking intelligence that would make an adversary’s choices less opaque, and, critically, concentrating on training U.S. and allied commanders to be more aware of the diverse threats they face and what they can do about them.

The Korean example in Figure 3 drives home the benefits of an integrated strategy. Today’s situation is depicted in the bottom line. The next line shows the increase in U.S. sorties that two additional Patriot battalions would confer. Adding better collective protection further improves operations later in the conflict, because there are fewer casualties early on. Finally, the top line reflects the contribution of adding, to the other improvements, better JSLIST suits, which are easier to work in than MOPP 4 suits.

Revised Operations: Planning New Ways to Project Power

In the long run, responding to the challenge of proliferation will turn less on better suits or more-credible threats than on how the United States plans to project military power. What the United States acquires will be less important than how it conceives its operations. Because defenses can limit but not eliminate the CBW threat, U.S. forces will remain vulnerable. For instance, the United States traditionally has massed both its combat operations and its support, concentrating targets of great value at a small number of bases and logistics facilities. Massing invites enemy CBW attacks.

The range of options runs from the specific and immediate to the longer-run and far-reaching. Immediately, foreign civilians may flee under the threat of CBW attack; so the United States cannot count on them to unload incoming ships or planes. American forces thus must plan on taking with them the capacity to off-load incoming forces and supplies.

The aftermath of the Persian Gulf War suggests that even very small exposures to CBW can have large consequences. Thus, how the United States moves forces or civilians to avoid CBW will be as important as how it defends. Decisions about how to avoid—or evade—CBW attacks will run through all planning.

RAND has been exploring new concepts for air operations in a CBW environment. These concepts carry with them a host of political problems, but they realize that transport aircraft in-theater would become contaminated and would operate “dirty” between the fighting points and the transshipment points, which would be beyond the easy reach of enemy CBW. At the transshipment points, supplies would be carefully transferred between “clean” aircraft coming from the United States and the “dirty” in-theater transports, with decontamination done as necessary.

Similar considerations would also apply to noncombatant evacuation operations (NEOs). The numbers of people to be evacuated from Korea, for instance, make the task formidable, even absent CBW. For the threat or use of CBW to be avoided might mean that NEOs could not be run from main operating bases. Instead, smaller C-130s

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For instance, unpublished work of Brian Chow on Air Force operations in a chemical and biological environment.
would bring cargo into dispersed secondary fields or highways and return with civilians and casualties. Operations would be staged through transfer bases in Japan, and some larger C-141s and C-5s might run “dirty” to main operating bases.

The Revolution in Military Affairs is spawning a number of new operational concepts based on standoff fires and smaller-yet-potent forces. The CBW threat is one more reason, and a very powerful one, for pressing that exploration. The United States might put only a limited force at risk to CBW in any given theater while taking advantage of standoff fires operating from less-vulnerable locations.

That concept would suggest planning to divide future major regional conflicts into phases. In the first phase, only light forces supported by standoff fires (e.g., aircraft) would be committed to the vulnerability of the battlefield. They would seek to halt the enemy advance and to destroy its CBW weapons and launchers. They would do so not with the firepower they brought but with capabilities they could command from afar—from standoff platforms at sea or in the air (or perhaps in space). Then, in later phases, as the CBW threat was controlled, the United States would deploy heavier forces to the battle to retake territory and to bring enemy leaders to justice.

The organizational implications of the change are as revolutionary as the concept. The first soldiers on the ground would become, in a very real sense, sensors; gaming has suggested that they would be invaluable in that role, especially where unmanned satellites or aerial vehicles could not see—villages, for instance. However, their mission, not to mention their lives, would depend on their ability to call in distant fires very quickly. The U.S. Marines are working toward response times of several minutes or less, which, in turn, would require connections between distant fires and on-ground soldiers/sensors that were very tight. If they were not in the same organization, they would have to exercise together to the point where they might as well be.

How the Pentagon organizes for this revolution is also an issue. Consigning counterproliferation to a single office only makes sense until there is a greater recognition of the need to address this threat throughout the military. Then, it will make much less sense to consign it to a separate niche. To do so is akin to charging a single point with responsibility for power projection. Rather, power projection is the responsibility of almost everyone at the Pentagon. So should counterproliferation be everyone’s mission. The goal of the current counterproliferation offices should be to seek this greater recognition, on which should follow the organizational arrangements.

**Retaliation and Declaratory Policy**

Retaliation remains a weapon in the counterproliferation arsenal, but the United States’ current options are limited because it has eschewed the use of CBW and because, in planning for conventional MRCs, it tends to attack only those crucial targets from which more NBC weapons could come and which otherwise could be the focus of retaliation. For the United States to respond with nuclear weapons would constitute a nuclear first use. While first use is not out of the question, most U.S. policies—for instance, those concerning the nuclear Non-Proliferation Treaty (NPT)—make it less credible. Declaratory policy needs to be rethought: Some enemy uses of CBW might cause damage awful enough to induce the United States not to rule out a nuclear riposte.

Retaliation would aim to both redress the damage caused by adversary CBW and “hold at risk a broad range of assets valued by such [adversary] political and military leaders.”12 Redressing, alas, is not very effective against symmetrical targets: Hitting North Korean air bases, for example, would matter little, because the North relies little on its air power. The United States has traditionally awaited major attacks by the adversary before responding to those attacks, suffering the impact of the adversary’s first strike. But a first strike with CBW may cause so much damage that allied and U.S. military capabilities would be severely impaired. An adversary’s large CBW first strike would likely be preceded by a series of adversary precursor acts of war (e.g., infiltration of SOF and SOF use of BW against selected targets). Against adversaries armed with large quantities of CBW, the United States needs to consider the use of early counterstrikes, which would come after adversary precursor acts (when a state of war would exist) but before its massive artillery and rocket attacks with CBW, seeking to disrupt or neutralize the adversary’s massive attacks.

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11By retaliation, we mean a U.S. attack in response to the use of NBC weapons: “The United States will retain the capacity to retaliate against those who might contemplate the use of weapons of mass destruction so that the costs of such use will be seen as outweighing the gains.” The White House, *A National Security Strategy of Engagement and Enlargement*, February 1996, pp. 20–21.

Historically, and most recently in the Gulf War, the United States has threatened retaliation to convince an adversary that the price of using CBW is too high. The threats seem to have succeeded in deterring Iraq, given that U.S. defenses against Iraqi CW and BW were far from perfect. Retaliation needs to focus on what adversaries value most—the survival of the leadership itself, its continuing control of its country, and perhaps its CBW. Yet even threats against top leaders may not suffice if those leaders are desperate or still perceive vulnerabilities they believe they can exploit. The United States must thus consider retaliating against the chain of command that might be associated with the use of CBW.

Responding to those who use CBW also includes ensuring their subsequent isolation from the community of nations. That goal will influence decisions about retaliation. For example, the United States might want to constrain its retaliation—and, in particular, not to resort to nuclear weapons—precisely because it seeks to maintain the moral high ground in international public opinion in order to isolate its foe. What it does not want is a later debate about which side committed war crimes.

**SUMMING UP: CHALLENGE AND RESPONSE**

The shadow of WMD falls over all of defense policy. For acquisition, it should drive trade-offs in the direction of theater missile defense, for which the immediate priority is ensuring more Patriot batteries. But the intermediate-term need is to begin to fill the gaps in the boost and early phases. At the margin, the package of improvements in passive defenses should be given priority over increases in firepower—a priority that runs against deeply held preferences in the Pentagon.

Most important, the shadow of WMD colors how forces are sized and organized, how they are deployed, and what connection they have to the weapons they do not carry with them. The changes required over time are fundamental and far-reaching. Operations need to be designed to avoid massing, not to produce it: Masses of soldiers or materiel become massive targets for WMD. For units themselves, especially those injected first into a conflict, the overriding imperatives are nimbleness for moving out of harm’s way and presenting small targets, along with such a tight connection to distant weapons that those weapons might as well be with them.

In the end, counterproliferation is no static match between the United States and its potential adversaries. Each element of a U.S. strategy to deny CBW attacks is at risk to enemy countermeasures. Consequently, the competition with potential foes is like a chess game. The advantages will accrue to the side that is best able to think and prepare several moves ahead. RAND previously designated such competitions as “challenge-and-response cycles.” For the United States to succeed in such a competition, it must understand and address its potential vulnerabilities, and also identify and be prepared to exploit the vulnerabilities of its potential adversaries. It is not enough for the United States to outfight its foes. It must outthink them as well.

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13 A RAND study of several years ago considered a large number of historical cases of weaker states—such as regional powers—choosing to attack stronger states. It concluded that such cases could be divided into three categories: (1) when the weaker state is highly motivated (e.g., when the leadership of that state feels desperate), (2) when the weaker state misperceives some facet of the situation (e.g., believes that the United States and its allies are vulnerable), and (3) when the stronger state is vulnerable. See Barry Wolf, *When the Weak Attack the Strong: Failures of Deterrence*, RAND, Santa Monica, Calif., N-3261-A, 1991.

14 This kind of deterrence may have played a role in the Persian Gulf War: "Another intelligence report indicates that an Iraqi commander in Kuwait was ordered to use chemical weapons against invading coalition forces. The report, issued in 1992, said 250 medium-range, Iraqi missiles were loaded with chemical agents south of the Kuwaiti airport during the Persian Gulf War. "When the allies began their advance, the commander responsible for the missiles, a Shi'ite, was given the order to launch them. He refused and was said to have deserted," the report said." Dave Parks, "Troops Near Chemicals at War's End," *Birmingham News*, October 6, 1996, p. 1.

15 Unpublished work by Daniel B. Fox et al. on modeling future combat.