WEAPONS OF MASS DESTRUCTION:
TITLE 10 IMPLICATIONS FOR THE MILITARY

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FOREWORD

The proliferation of Weapons of Mass Destruction (WMD) and their means of delivery has already occurred. These nuclear, biological, and chemical weapons greatly complicate the ability of the United States to manage international affairs, achieve its national interests and conduct military operations on today's regional battlefields. The U.S. effort to address the WMD problem has two elements: nonproliferation, that is the largely diplomatic efforts to prevent the spread of these weapons, and counterproliferation, the Department of Defense effort to protect U.S. interests and forces from a WMD capable enemy. The military element of power plays an essential role in both elements.

Recognizing the importance of this threat, the Army's 1994 Louisiana Maneuvers (LAM) selected WMD for one of its critical issues. As part of the LAM examination process, the Deputy Chief of Staff for Operations (DCSOPS) tasked the Army War College to determine the Title 10 implications of WMD for the Army, and to identify critical related roles and missions issues for the Army Staff. A group of six War College students, under the direction of the Center for Strategic Leadership, addressed this requirement and produced this study. This group had the benefit of a faculty committee with representatives from each of the departments, and the active support of the DCSOPS, the Dismounted Battle Space Battle Lab, and the U.S. Army Chemical School. The results of the study have been briefed to the Army Staff and the Louisiana Maneuvers WMD Working Group.

This study was not intended to define the lowest levels of analysis concerning the Army's WMD mission; rather, it is a macro level examination of the areas in which Army doctrine, Title 10 responsibilities and capabilities relate to one another and the WMD threat. The study also makes recommendations on how these three areas should be changed if the Army is to fight and win in a WMD environment. Although not an all inclusive analysis of the issues, the

study points out important areas for further analysis and issues that must be addressed if Army operational effectiveness is to be maintained, and the support of the U.S. nonproliferation and counterproliferation initiatives is to be provided.

The Center for Strategic Leadership is pleased to offer this contribution to the ongoing analysis of the Army's roles and missions in the WMD environment.

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EXECUTIVE SUMMARY

One of the critical issues examined by the 1994 Louisiana Maneuvers was the threat of Weapons of Mass Destruction (WMD). As part of this examination, the Army War College was asked to:

a. Determine in what areas Army doctrine must be changed in order for Army forces to prevail against an enemy who will use WMD and whose employment doctrine and delivery means are both conventional and unconventional.

b. Recommend appropriate changes, if any, to Army roles and missions, under Title 10 responsibilities, to prepare U.S. forces to counter WMD in regional contingencies.

c. Describe the scope of Army capabilities required to prevent and, if necessary, counter enemy use of WMD on the battlefield.

Inherent in these taskings is the recognition that the Army will fight as part of a joint military force under the control of a Theater CINC, and that the success of this force will depend in part upon interpretability with the coalition forces of a regional alliance.

Doctrine.

Joint and Army WMD doctrine has evolved to recognize the changes in the global security environment, altering its emphasis to account for a threat that is more widespread and, *importantly*, exists across the range of military operations. However, that evolution is far from complete. In order for U.S. forces to prevail in a WMD environment:

- Doctrine must recognize that the new world order coupled with the United States' unilateral abandonment of chemical

and biological weapons capabilities, mean that old deterrence formulae may not apply. All campaign planning, therefore, must place special emphasis on the achievement and maintenance of WMD deterrence. Further, doctrine must comprehensively address the integration of U.S. offensive use of WMD into campaign planning.

- Joint doctrine must exert a more centralized control over passive defense. Because the Army has the greatest passive defense capability, it must recognize that it will play the dominant role in the joint effort -- especially in the defense of the theater base -- and plan accordingly.

- The Army should undertake a thorough doctrinal review to ensure that its doctrine reflects the omnipresence of the WMD threat, and avoid treating WMD as a special or separate category of operations. United States forces should be trained to view the threat of WMD as **an expected condition of conflict**, and prepare themselves to fight and win under those conditions.

Title 10.

The authority for warfighting capability resides not only in Title 10 to the U.S. Code, but in DOD Directives, and Executive Agency status, all of which impact Army roles and missions in the WMD area. Support for the following recommendations is essential to the successful conduct of military operations in a WMD environment.

- The U.S. Army Chemical Corps/School should play a central role in building doctrine and capabilities for theater-wide reconnaissance, decontamination, warning, restoration, and the coalition coordination of WMD issues.

- A Headquarters, Department of the Army Task Force should be formed to use the authority mandated in Public Law 103-160, and study the creation of a Joint Chemical Corps, versus Army Executive Agency responsibility for the preceding recommendation.

- Develop adequate doctrine and pre and post deployment planning for DOD and contractor civilians.

- Support Congressional passage of legislation granting the Secretary of Defense authority for the rapid mobilization of reserves.

- Conduct a thorough review of the U.S. Codes for relevancy and consistency regarding WMD.

Capabilities.

The new deterrence formula mandates a more intensive focus on all WMD defense response options: counterforce, active defense, passive defense, and BMC4I (Battle Management Command, Control, Communications, Computers, and Intelligence). More emphasis should be focused on active measures with a significant improvement in passive programs. Critical capabilities required to operate effectively in the WMD environment are:

- Deep counterforce measures such as SOF, attack aviation, and artillery.

- An integrated, multi-layered and synchronized air and missile defense system.

- Digitization of the joint battlefield, with unique sensing and targeting devices, and a commander' s Intelligence Preparation of the Battlefield (IPB) for WMD.

- Expansion of WMD defense training.

- Exploitation of new technologies to create material enhancements such as a lightweight, universal and automatic chemical and biological agent detector.

The U.S. Army must assume the battlefield of the future will involve the use of WMD. To fight and win on this new battlefield, the theater CINC must have an expanded range of capabilities, new theater units, and commanders and soldiers prepared through doctrine

and training to fight in the WMD environment There are opportunities for the Army to assume major new roles and missions on this joint battlefield.

Although among the services the Army has the greatest existing capabilities to bring to bear on the WMD conundrum, it should not be expected to do so out of *existing* resources. Assigning responsibility without proper resourcing will threaten Army Operational Readiness and result in budgetary squabbles that will needlessly delay critical WMD capabilities. DOD must forthrightly recognize the importance of the WMD mission by providing additional resources to the responsible service.

INTRODUCTION

> There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in the introduction of a new order of things.
>
> Machiavelli

The profound changes required of the Army for the nation's defense in the 21st century are a direct result of three simultaneous paradigm shifts that occurred with the end of the Cold War. First, the threat is different. The United States is evolving from its forty year national security strategy of global confrontation containing a clear Soviet threat. In its place is a reactive strategy based primarily on the dangers of regional conflicts, and the use of U.S. forces in such operations other than war (OOTW) roles as peacekeeping, peacemaking, peace enforcement, and humanitarian operations. The assumptions underpinning these new military roles are more fully developed in the next section of this study.

The second paradigm shift is the transition to joint operations. Although some pressures for reform are budget driven, there is a consensus that the Armed Forces need to be better integrated and organized to take full advantage of each service's abilities. Capitalizing on this trend requires new thinking, tough decisions, and unprecedented cooperation. The roles and missions of each service will need to be re-examined, and redundancy minimized.

The present period has much in common with the years immediately following the end of World War II, when military superiority, no clear threat, and a severe budget crisis led to a downsizing of the U.S. military that evolved into a bitter and acrimonious service fight over roles and missions. The present move toward jointness, correctly accomplished, can be an opportunity to subdue much of the rivalry associated with downsizing and capitalize on the opportunity afforded by the third paradigm shift.

The third paradigm shift is the exponential development of electronics and information technology, referred to by a number of terms such as the "information highway" or the "third wave." The critical challenge for the military is harnessing these technologies to maximize combat effectiveness. Their potential application is broad and can be found in the "digitization" strategy of the Army and the emphasis on space and space based communications assets. This creates an unprecedented opportunity to shape the battlefield and maintain the cutting edge. Because very few regional powers will have such emerging capabilities, utilizing these technologies is a major component to the U.S. strategy of winning regional conflicts.

The three paradigm shifts are occurring at the same time that weapons of mass destruction (WMD) are proliferating. These weapons threaten to alter the dynamics of the battlefield as well as compromise the United States global leadership role and influence. Clearly, to design a military strategy taking into account all of these changes is the preeminent challenge facing today's military leadership.

Prior to World War II when the United States rushed to rearm and equip forces to deal with the Blitzkrieg warfare emerging in Europe, Army Chief of Staff General George C. Marshall launched the Louisiana Maneuvers (LAM) as a rapid process to assess readiness, test doctrine, and serve as a laboratory for examining issues. The concept of the Louisiana Maneuvers strategy has been revived by the current Chief of Staff, General Gordon R. Sullivan, to address this rapidly changing environment. The Louisiana Maneuvers brings a measure of strategic agility to the military decision process. It shortcuts the Cold War decision methodology, seeking to change the way the Army changes; its objective is to prepare the Army to meet the challenges of the future.

One issue examined by the 1994 Louisiana Maneuvers study cycle is the WMD threat. The Army War College was tasked with examining the doctrinal, Title 10, and capabilities implications of the current WMD threat environment that were not evident in the Cold War era. This was accomplished by a study group of students and

faculty at the Army War College with the guidance of HQDA ODCSOPS. This study is the product of that study group and contains its recommendations to the Louisiana Maneuvers Board of Directors. The purpose of this study is to examine the implications of WMD for the Army and to:

a. Determine in what areas Army doctrine must be changed in order for Army forces to prevail against an enemy who will use Weapons of Mass Destruction and whose employment doctrine and delivery means arc both conventional and unconventional.

b. Recommend appropriate changes, if any, to Army roles and missions under Title 10 responsibilities to prepare U.S. forces to counter WMD in regional contingencies.

c. Describe the scope of Army capabilities required to prevent and, if necessary, counter enemy use of tactical or operational WMD on the battlefield.

Though seemingly disparate, these separate tasks are fundamentally linked. (See Figure l.)

The doctrine for fighting and winning the nation's wars should flow from the National Military Strategy. Adequate capabilities are then developed to carry out this doctrine. Responsibility for doctrine and capability development is vested in Title 10 of the U.S. Code. Therefore, Title 10, doctrine and capabilities should be consistent and mutually supporting. Inconsistencies between these three areas represent risks to the nation in the use of the armed forces. The degree of coherence among these areas in a WMD environment is important. The study group examined this aspect in detail and presents its conclusions and recommendations.

It is necessary to understand the assumptions of the study in order to appreciate fully its findings. The assumptions are:

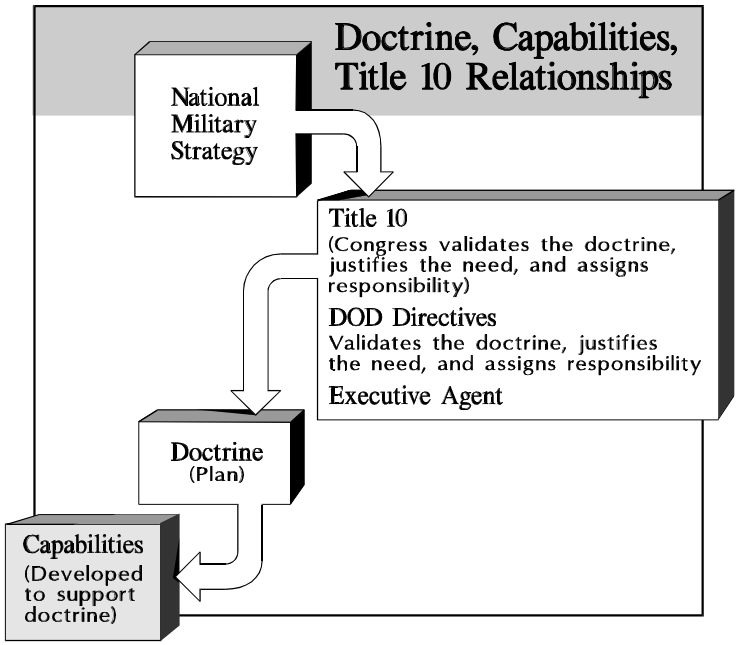

Figure 1.

a. WMD and their means of delivery have proliferated and any action undertaken by U.S. Forces will be conducted under the threat of WMD. Political efforts toward limiting proliferation will only be partially successful.

b. The United States will abide by the Chemical and Biological Weapons Conventions. Potential belligerents may not.

c. The United States will continue to maintain a nuclear deterrent.

d. The United States will continue to use the military element of power at selected locations throughout the world to protect its interests.

e. Terrorist groups will gain increasing access to WMD and the means of delivery.

f. Jointness and constrained resources will be dominant characteristics of future operations.

g. Future doctrine and capabilities will be based upon U.S. forces engaged in two nearly simultaneous major regional contingencies (MRCs).

h. The United States Army will be a force projection power based primarily in CONUS.

i. Contingency forces will include active and reserve component military, DOD civilians, contractor personnel, and host nation support, and may include third country nationals.

j. U.S. forces will fight as part of a coalition.

Early in the study, the term "WMD" caused several problems. WMD is the Soviet term that binds together nuclear, biological, and chemical weapons, implying commonality when none exists. The study group questioned this unnatural grouping. Although outside the scope of this study, a discussion of this problem and its dangerous implications is provided at Annex A. The lack of specificity in the term "WMD" is a major shortcoming in building a strategy around the term. However, because WMD is the accepted terminology in the political arena, it is used throughout this report.

The implications of WMD for the Army can only be understood in the context of changes in the global security environment, and the WMD deterrence posture of the United States. In the Cold War era, the U.S. National Security Strategy and U.S. space force structure were organized around Cold War concepts (See Figure 2.)

The MRC era is characterized by a new, though quite delayed, National Security Strategy and reduced force structure, the characteristics of which are also depicted in Figure 2. Such significant

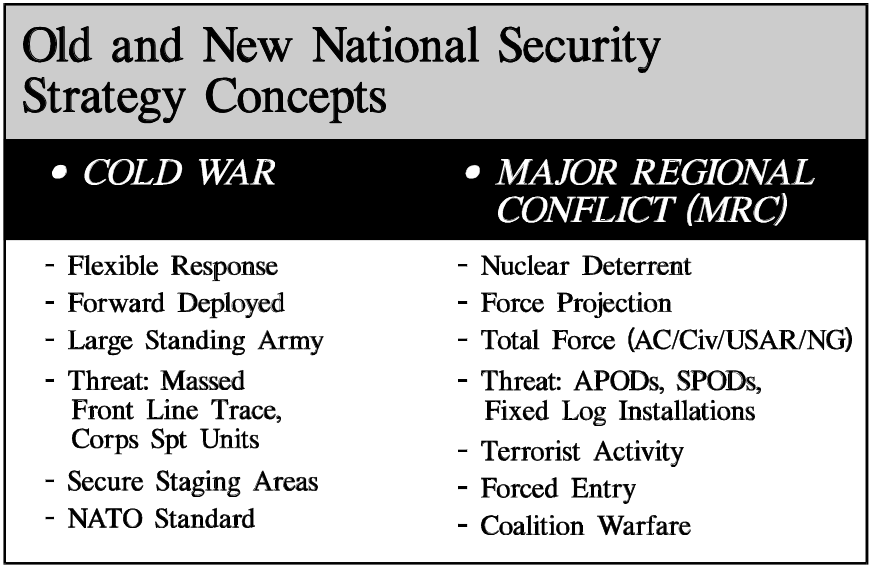

Figure 2.

changes dramatically affect the ability of the United States to protect its national interests and provide the credible deterrence necessary to support U.S. foreign policy.

Deterrence has always been a mainstay of WMD defense. Credible deterrence must meet three requirements.

1. The U.S. must be able to respond effectively.

2. The adversary must believe that the U.S. intends to respond.

3. The U.S. must be able to defend itself against a nuclear, biological, or chemical attack.

By renouncing its chemical and biological offensive capability, the United States placed its deterrence posture for WMD at risk, and retains only nuclear or conventional options, both of which have associated problems. The nuclear weapons response option lacks

popular support. In addition, reliance on nuclear retaliation to deter a chemical attack invites escalation to a second WMD. For example, if a belligerent uses chemical weapons and also possesses a nuclear capability (as seems likely in the future), the use of nuclear weapons by the United States could justify the use by the belligerent of a nuclear weapon. The traditional U.S. posture regarding the unacceptable nature of nuclear war and its leadership in the Nuclear Non-proliferation Treaty makes threatening a nuclear response to a non-nuclear scenario difficult and unlikely.

A common assumption is that the U.S. could employ an overwhelming conventional response to counter a WMD attack. However, this may not be possible. In an all-out conventional war, would decisive additional conventional capability be available? Many knowledgeable observers already question the capability of the United States to fight and win two simultaneous MRCs. Moreover, decreasing force structure and funding for future high-tech weapon systems equates to decreasing combat power and may preclude stepping up a conventional response. Therefore, the conventional option in some scenarios may also lack credibility. However, the development of an alternative conventional deterrent weapon, capable of widespread destruction, would add balance to the U.S. deterrence posture. A robust research and development (R&D) program is essential to this effort.

Strong offensive and defensive capabilities are key components of WMD deterrence. Figure 3 provides the framework for discussing WMD as depicted in the emerging National Military Strategy.

The three broad components of the National Military Strategy that address the WMD threat are: prevention, containment, and response options, the latter of which includes offensive and defensive capabilities. The United States has renounced offensive chemical and biological capabilities and is unlikely to use nuclear weapons in most likely WMD scenarios. Moreover, the United States is reducing its conventional capabilities and funding for future weapon systems, and has failed to articulate a coherent WMD deterrence policy. Because of these conditions, the credibility of the U.S. offensive response

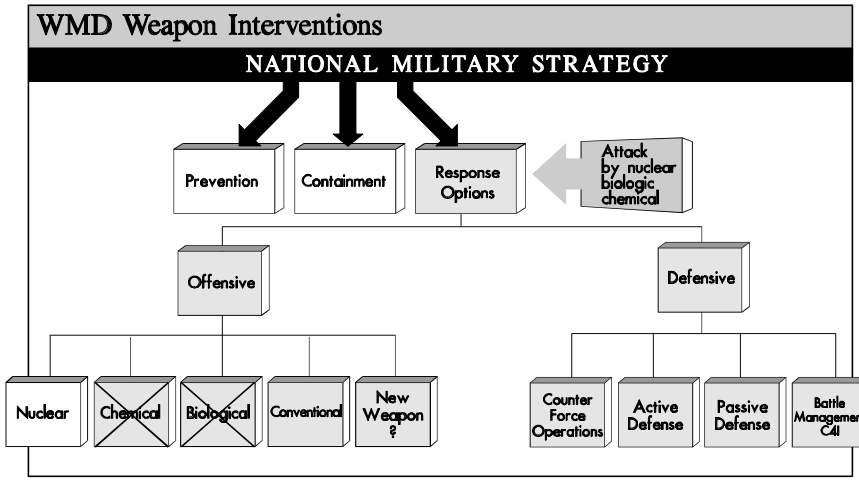

Figure 3.

options must be considered suspect in the eyes of some potential WMD belligerents.[1]

If the potential belligerent does not believe that the United States intends to respond effectively to WMD attacks, then the role of defense against WMD attack takes on added importance in the deterrence equation. In order to support U.S. nonproliferation and counterproliferation initiatives, a strong and effective WMD capability is essential. It is in this context that this study evaluates the implications of WMD for the Army. The remainder of this paper will concentrate on defensive response options, categorizing them under the four conventionally used pillars: Counterforce Operations, Active Defense, Passive Defense, and Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I).

DOCTRINAL ISSUES

Introduction.

Led by the newly published versions of Joint Pub 3-0, *Doctrine for Joint Operations* and the Army's FM 100-5, *Operations,* U.S. service doctrine regarding Weapons of Mass Destruction is undergoing a significant, but as yet, incomplete evolution. Reacting to the collapse of the Soviet Union, the end of the Cold War, and the ongoing or imminent proliferation of these weapons, doctrine is changing in three major ways.

First, the focus has shifted from an objective/technical orientation regarding the physical effects of WMD, to a broader, more subjective approach that concentrates on their political and psychological impact. This is an important dimension, as these weapons have a significant terror component on and off the battlefield. There are also major differences among allies and potential coalition partners with regard to protective, preparation and response options.

Second, the nearly single-minded focus on the Soviet threat has been replaced by a broader concern with the threat from "third world" enemies in a regional contingency. During the Cold War, the superpowers had global interests and a global reach that constrained the use of WMD. No such restraint may currently exist for a third world country with limited regional aims. The proliferation of WMD is adding dozens of regional actors capable of threatening U.S. interests.

Third, and most important, U.S. doctrine now sees the threat of WMD as existing across the "Range of Military Operations" rather than limited to what was called "high intensity" conflict. This is a critical change, as it recognizes that U.S. forces must be prepared to operate under the threat of WMD whenever and wherever deployed, regardless of the assigned mission. The Army should undertake a comprehensive review of all doctrine to ensure it recognizes this fact.

This study attempts to begin the process by analyzing current doctrine and recommending changes to make it relevant in the new, WMD world order situation.

New doctrinal definitions of WMD reflect the changing spirit of doctrine; note, for example, the subjective emphasis of the new FM 100-5 definition of WMD as opposed to the old JCS version.

> ...weapons that are capable of high order of destruction and/or being used in such a manner as to destroy large numbers of people.[2]

> Weapons...that...through use or threat of use-can cause large scale shifts in tactical objectives, phases, and courses of action.[3]

A changed emphasis is also evident in the new JCS discussion of the effects of the use of these weapons.

> It may not be the sheer killing power of these weapons that produces the greatest effect. It is the strategic, operational, psychological and political impacts of their use that can affect strategic objectives and campaign design.[4]

This shift seems to reflect a much greater sophistication regarding the impact of WMD on conflicts than previous doctrine envisioned -- particularly those conflicts involving asymmetrical levels of interest between the combatants. For example, it is unlikely that U.S. survival interests would be at stake in a regional contingency. An adversary, on the other hand, may well be fighting for survival interests and may threaten or actually employ WMD to defend those interests.

The absolute physical or military effects of such a strike might not be great, but the political/psychological jolt to the U.S. could

paralyze policy or lead to public pressure to abandon U.S. objectives. Therefore, possession of a limited number of weapons by a relatively weak adversary could deter the U.S. from employing its otherwise greatly superior military force in pursuit of its objectives. The possibility of such a response provides an incentive for the proliferation of WMD. Thus, as FM 100-5 points out, proliferation of WMD, "dramatically alters the nature of regional conflicts."[5] **Any current doctrine that does not recognize this new world condition is now obsolete**.

Before undertaking an examination of doctrinal problems, a brief review of the current major principles of doctrine is in order.

Doctrinal Principles.

An analysis of current doctrinal literature reveals that one may derive Army and Joint doctrine concerning WMD and counterproliferation from manuals written to cover three major operational areas: nuclear, biological, and chemical defensive operations; nuclear operations; and theater and strategic missile defense operations. This brief synopsis of derived doctrine will first cover some common doctrinal principles, and then focus on its defensive and offensive aspects.

The first principle is that **deterrence** is the first priority in all doctrinal discussions of WMD, reflecting the political goals of demonstrating U.S. will and capabilities. Deterrence involves convincing an enemy that it does not stand to gain from WMD use. Doctrine must demonstrate that U.S. defensive measures would mitigate any weapon effects and convince an enemy that any attack would provoke a devastating response. Thus, doctrine encourages commanders to develop an integrated and coordinated deterrence effort with two escalating objectives: first, to deter or prevent attack (this may include preemption); and second, to respond appropriately should deterrence fail.[6]

This appropriate response is not necessarily nuclear, but joint doctrine still clearly regards potential U.S. nuclear retaliation as the major deterring element.[7] This doctrinal dependence on nuclear retaliation is driven by political considerations and presents significant problems for the credibility of our deterrence.

The second major principle is that WMD deterrence and operations are a **joint enterprise**. The coordinated efforts of several unified and specified commanders, along with their respective component commanders, will always be required. Even in a relatively small regional contingency, for example, Space and Strategic Commands as well as the regional CINC will be involved. Clearly, then, the direction of WMD efforts must be at the joint level.[8] Despite the lack of its own WMD, the Army will play a role in all aspects of WMD operations. It will defend itself, help to defend the other services, and support the other services as they execute retaliatory operations.

Further, should WMD be used, doctrine demands that the U.S. seek a quick and successful termination of the conflict. Operations under WMD conditions are inherently unstable, and even limited exchanges carry with them the danger of escalation. Destruction should be limited to that necessary to achieve a quick end to the conflict.[9]

The final principle concerns the over-riding concern with **force protection**. This imperative must color all operational and tactical planning. Discipline, training and physical fitness are key to this effort.[10]

WMD defensive doctrine derives from joint and Army doctrine regarding nuclear, biological, and chemical (NBC) defensive operations, and the newly emerging missile defense doctrine. It seeks four major objectives: demonstrate resolve and deter aggression; protect forces, critical assets, and areas of vital interest; detect and target delivery vehicles and coordinate a multi-faceted response; and reduce the probability of and minimize the effects of damage.[11]

To accomplish these objectives, newly emerging doctrine recognizes four contributory elements (sometimes called "pillars") as foundations for analysis. The first, passive defense, includes measures taken to reduce the vulnerability of one's force to WMD or to minimize the effects of a strike on that force. Measures include dispersal, hardening or digging in, operational security, deception, and the wearing of protective equipment. The second, active defense, attempts to intercept enemy weapons in the act of delivery. Shooting down missiles or airplanes in flight is the most obvious manifestation of this element, but it should also include measures taken to intercept any other delivery means, such as enemy special forces or terrorists. Third, attack, or counterforce operations, seek to destroy enemy WMD before they are launched by striking at their delivery vehicles, production centers, or command and control mechanisms. Finally, BMC4I directs, coordinates, and controls the entire effort.[12]

Joint doctrine basically delegates the responsibility for executing the first pillar, passive defense, to the components. It charges the Joint Force Commander (JFC) to develop a "program" for chemical and biological reconnaissance, monitoring, detection and decontamination, but places no person or agency clearly in charge of the effort.[13] Component commanders for example, determine their own requirements for chemical units. JFC's it seems, merely coordinate the separate efforts of the components rather than direct a tight, synchronized program. Emerging joint doctrine for WMD defense, then, stands in stark contrast to the tightly controlled and organized effort at air defense, which will be discussed below. This doctrinal weakness in passive defense is a problem that this study will address.

Army doctrine for passive defense seems to focus on protection of its forward units. It stresses the principles of *avoidance* (including reconnaissance, identification, marking, and warning efforts), *protection* (the use of alarms, monitors, and protective equipment), and *decontamination* to focus planning. Chemical companies are provided to each heavy division, while corps are provided a chemical brigade. Interestingly, only a battalion supports the reconnaissance and decontamination effort at the theater base.[14]

Joint and Army doctrine for the second pillar, active defense, focuses on air and missile defense and is well developed in these areas. Joint doctrine urges the appointment of an Area Air Defense Commander (AADC), to coordinate the aerial defense efforts. The Joint Force Air Component Coordinator (JFACC) (or Commander) "usually" performs this function and is supported by the Army Theater Air Defense Commander, a subordinate of the AADC, who controls the Army area and point defense units involved in this joint effort.[15] Years of experience with air defense operations and the requirement to maintain an operational capability in NATO has refined doctrine substantially. Techniques and procedures are well developed and practiced, and responsibilities are clearly assigned.

The defense against other, perhaps less conventional, means of delivery, however, is neglected. In fact, it is not clear that the current DOD dialogue concerning active defense recognizes that defense against other than missile or airplane-delivered WMD belongs to this category. This omission is discussed later.

Emerging doctrine recognizes that the overall direction of the third element, attack, or counterforce operations belongs at the joint level, from which the efforts of the components and the supporting CINCs in this complex enterprise must be coordinated. As most counterforce targets will be struck from the air, the JFACC, should one be appointed, normally plans and conducts mission execution. The attack of WMD targets will be a portion of the Air Campaign Plan, but may also include Special Operations Forces (SOF).

Not all counterforce targets are suitable for air strike, however. SOF play an important role in these operations. They can apply force more precisely and discreetly than even precision guided munitions (PGM), destroying only the threatening portion of the target, precluding the need for the air destruction of certain WMD targets, and reducing risks of excessive contamination. Hand-emplaced munitions may be the only safe way to destroy certain targets. Finally, only forces at the target location can know with certainty what the exact results of the strike were. When both air and SOF elements are employed in counterforce operations, the JFC integrates their efforts

and establishes the command relationships. Maneuver commanders also may have a role in striking counterforce targets within their areas of operations. The JFC might assign Army Corps commanders responsibility for destroying closer-in targets with cannon or rocket artillery, or perhaps with attack helicopters. Army or Marine maneuver forces might also support deep air strikes by suppressing enemy air defenses. Unfortunately, however, FM 100-5, written before the emergence of the DOD counterproliferation debate (and the development of the four pillars framework), does not discuss the Army's role in counterforce efforts.[16]

Finally, the BMC4I pillar, a catch-all for the systems necessary to direct, coordinate, and execute effective WMD defense, receives little current doctrinal treatment. The JFC, of course, holds the doctrinal responsibility for overall battle management, but the literature does little more than caution him that he must employ current communications systems to manage WMD defense.[17]

Joint and Army doctrine for the offensive use of weapons of mass destruction presents an interesting case. Despite its obvious importance as a component of deterrence, the offensive, or retaliatory, use of WMD has received little attention in the DOD counterproliferation-proliferation dialogue.[18] Joint Service doctrine, however, has not ignored this vital component of strategy. Joint Pub 3-0 suggests that if the use of WMD is directed, it should "strike at critical enemy centers of gravity" in order to effect a quick end to the conflict. Joint Pub 3-0 stresses the need to contain the conflict and to end it at the lowest level of destruction. In coordination with the National Command Authority, combatant commanders will select theater targets and develop plans to strike them. Coordination with the USSTRATCOM will, of course, be close. Joint doctrine recognizes that WMD can serve both strategic and operational ends. The first use would "normally be strategic," while later strikes could attempt to alter the operational situation in our favor. Doctrine provides little guidance, however, as to how one might go about affecting the operational situation.[19]

Army doctrine concerning offensive WMD use is in flux. Beyond acknowledging that the Army is no longer a WMD deliverer, FM 100-5 virtually ignores the offensive employment of WMD. An initial draft manual on nuclear operations recognizes that the Army would support WMD delivery and participate in the selection of targets, but it fails to go beyond a discussion of some of the tactical advantages that a user might seek.[20] The soon-to-be published FM 100-7, *The Army in Theater Operations,* acknowledges that when used, WMD fires "could become the predominant operational instrument" but does not go on to discuss their employment. The integration of WMD offensive use into campaign planning is a subject that Army doctrine substantially neglects.[21]

This doctrinal flaw leads to the concluding section of this portion of the study. What major areas exist where Army or joint doctrine concerning weapons of mass destruction requires significant revision?

Major Doctrinal Issues.

The first doctrinal issue concerns the primary principle of both joint and Army doctrine regarding WMD -- the centrality of *deterrence* to WMD policy. Deterrence is simultaneously an operational, strategic, and political goal. To be effective, deterrence requires the capability and credibility of retaliation, as well as the ability to protect U.S. forces from attack. As the United States has renounced biological weapons capabilities and is giving up any chemical capacity, it relies primarily on nuclear force for deterrence. This reliance is increasingly problematic. Consider, for example, a massive chemical (or biological) attack against U.S. forces assisting a regional ally in its defense against invasion. Where would the U.S. retaliate with nuclear weapons? A strike against enemy forces would probably involve exploding nuclear weapons over friendly territory, an unlikely occurrence. A strike against an enemy strategic "center of gravity", on the other hand, would probably mean killing large numbers of enemy civilians with uncertain effect on the battlefield outcome. Would the U.S. kill large numbers of their civilians because they killed some numbers of our soldiers? These and other difficult

political problems undermine the credibility of nuclear weapons as a deterrent to anything but a nuclear attack.

Thus the renunciation of any chemical/biological retaliatory capability involves **substantial risk to deterrence** -- a risk that doctrine must acknowledge and treat. For example, what conventional retaliatory options are useful? Can the U.S. hold high value targets within enemy territory hostage against enemy WMD use? Future campaign plans developed for situations across the range of military operations must address these considerations. The methods of achieving and maintaining deterrence should be a central theme of future concepts of operations.[22]

The second major problem with doctrine for operations under the threat of WMD is that it lacks **integration**. Most manuals still view WMD mainly as a special, separate category of operations. Army FM 100-5 and Joint Pub 3-0 confine their discussions of WMD to three or four pages, and ignore the subject for the remainder of their texts.[23] For example, the FM 100-5 section on Protection as a dynamic of combat power fails to mention the threat of WMD.[24] Logistics manuals -- written for the element that is the most lucrative enemy WMD target -- virtually ignore the subject. Because the proliferation of WMD and their vehicles of delivery now **make the threat of WMD nearly omnipresent**, the discussion of WMD defensive and retaliatory measures should pervade doctrine, and should be an accepted part of protecting the force, rather than a difficult subject to be avoided if possible. Doctrine should *condition* U.S. forces to *expect* to operate in areas where WMD use is threatened or has occurred.

The third issue relates to the need to expand WMD discussion in doctrinal literature on intelligence. At all levels of analysis, the WMD threat must greatly influence the intelligence preparation of the battlefield (IPB). Where might the enemy place its WMD delivery means? At what targets will the enemy strike? Where are we particularly vulnerable? What targets could the U.S. threaten to strike in retaliation that are sufficiently valuable to dissuade the enemy from

initiating a first strike in the first place? Current IPB manuals virtually ignore this issue. This must be changed.

Fourth, doctrine needs significant revision to improve its approach to passive defense, and to recognize major Army roles in this area. Chemical, biological, and radiological reconnaissance, detection, monitoring, and decontamination are critical functions that influence the outcome of a campaign. Their management should be accomplished at the theater level to ensure efficient use of the limited resources available. This study strongly recommends the appointment of a single manager at joint headquarters to help the JFC handle these efforts. Because of its executive agency for chemical and biological defense, this appointment should be a senior Army Chemical Corps officer.

This single manager would apportion the limited reconnaissance and decontamination assets (the vast majority of which are Army) to protect locations critical to the joint effort, as well as to prevent the double coverage and gaps which might occur if components are responsible for their own efforts. This manager would organize efforts on an area basis and direct the assets of all involved services. In short, he could act toward the chemical, biological and radiological threat in a manner similar to the way the AADC coordinates air defense efforts.

Army responsibilities in this area, however, will go beyond the provision of a single manager. As it possesses the most numerous and capable reconnaissance, detection, and decontamination units, the Army will almost certainly be tasked with the protection of assets that, although belonging to another service, are critical to the joint effort. Army Fox chemical reconnaissance vehicles, for example, will be vital theater assets and could be employed anywhere.

With this in mind it appears that Army chemical doctrine, which concentrates units and efforts forward of the corps rear, needs revisiting. As the most lucrative targets for enemy WMD strikes are in the Theater Base (airports, ports, POMCUS sites, for example),

the placement of a chemical brigade with each corps, while providing only a battalion to the theater base, seems unbalanced. This comment does not mean that other services have no responsibilities for passive defense. It simply recognizes that, as executive agent, and as the primary land force, the Army will have greater responsibilities for NBC defense than other services; and that sometimes the Army might provide direct support to other services or agencies. Army and Joint doctrine need to consider these factors and develop appropriate guidance. The argument is made that forces predominantly in the rear are more likely to be reserve component, hence, the concentration forward. Future force structure designs need to recognize this disparity and retain adequate active component chemical units.

A related issue concerns protection for host nation support (HNS) facilities and personnel. The United States has come to rely increasingly on local or third-party nations to provide much of the labor needed to sustain its forces logistically. These personnel (and perhaps their families) and the facilities they operate will need protection. Who will provide this? The host nation may not have the ability. Nevertheless, the asset may be crucial to success, and workers who are unprotected (or whose families are unprotected) may not remain to provide critical support. Joint doctrine needs to address this significant concern, and the Army should anticipate increased requirements to protect HNS assets.

The fifth major area requiring doctrinal revision concerns the offensive use of WMD. As previously mentioned, the ability to retaliate effectively with WMD is an important part of deterrence. The Army may no longer be responsible for WMD delivery, but Army doctrine should not neglect the subject. Army forces will support WMD use, perhaps with the suppression of enemy air defenses or with the reconnaissance and selection of targets. More importantly, however, Army officers will participate in drafting and executing campaign plans that envision friendly WMD use. Army doctrine should discuss how to integrate WMD strikes into campaign planning, the determination of appropriate targets, and the integration of such strikes into campaign planning. Doctrine should also explore the theoretical place of WMD. It would appear, for example, that

these weapons are best understood as operational fires, or as weapons for strategic attack. The new FM 100-7 attempts to clarify this issue, but all doctrine, especially FM 100-5, must address warfighting with WMD.

Another area requiring doctrinal update concerns the joint doctrine adoption of the four pillars as a framework for the analysis of WMD defense. The 1993 version of FM 100-5 was completed prior to the publication of this framework, and thus does not discuss it. Future versions of FM 100-5 should incorporate this useful construct, as should all relevant Army manuals published in the future.

The "digitization of the battlefield" has tremendous potential for enhancing operations conducted under the threat of WMD. The Army must explore the doctrinal implications that will arise as it becomes a "Third Wave" army. The instantaneous transmittal of information locating contaminated areas to individual vehicles is an example of a possible application. The promulgation of warnings and the change of Mission Oriented Protective Posture (MOPP) status are others. This digitization, however, will be only partially successful if it omits the transfer of information between services or allies. Digitization thus needs joint and combined connectivity.

Joint and Army logistics doctrine, as mentioned, must address the threat that WMD pose to sustainment operations. Logistics planners should focus on ways to make the theater base and other elements of the lines of communication less vulnerable. Logistics planners must analyze the critical nodes and ensure that plans include all reasonable efforts to protect them. Doctrine should prescribe that, when feasible, key logistics functions should take place beyond the range of the most threatening WMD. The new concepts regarding stand-off or off-shore logistics, which leverage computers and digitized information flows to provide just-in-time supplies to decrease in-theater stockage levels, can help in this regard. In short, logistics planning must occur with the threat of WMD clearly in mind.

Two other concerns complete the discussion of WMD doctrinal issues. First, current dialogue concerning active defense concerns itself exclusively with the air delivery of these weapons. A more complete theoretical construct should encompass the interception of any means of delivery, to include special operations forces or civilian vehicles. Doctrinal debates must avoid creating paradigms that restrict thinking. Finally, the public tolerance for exposure to even minor doses of radiation is extremely low. Doctrine which permits the exposure of soldiers to much higher levels of radiation or biochemical agents than permitted in industrial settings will be a great post-war public relations problem, no matter how cogent the military justification.[25] Doctrine must consider public sensitivities.

In conclusion, doctrine concerning weapons of mass destruction has recognized the sweeping changes brought about by the fall of the Soviet Union and WMD's continuing proliferation, and is changing its emphasis to account for a threat that is now more widespread and extant across the range of military operations. The four pillars doctrine is an effective mechanism for analyzing WMD defense. In certain areas, notably air and missile defense, it is particularly well developed.

Even so, doctrinal evolution is incomplete. Several key areas remain to be addressed.

- Doctrine must recognize and deal with the fact that old deterrence formulae may no longer suit current circumstances; rather it must explore and fully develop the friendly use of WMD.

- Joint doctrine must exert a more centralized control over passive defense efforts, and the Army must realize and accept the fact that it will have great responsibilities to defend the joint force and theater base, as well as its own elements, against WMD.

- Finally, new circumstances portend a wide spread of WMD that does not permit their treatment as a separate and special category. The Army should undertake a comprehensìve

doctrinal review and update texts to reflect this proliferation. U.S. forces should view the threat of WMD as an **expected condition** of combat, and be prepared to survive, fight, and win under those conditions. For, if an enemy perceives that U.S. forces can fight and win under WMD conditions, it may not be tempted to use or even to acquire these weapons.

TITLE 10

The roles and missions of the U.S. armed forces come from three related but distinct documents: the U.S. Code, DOD directives, and JCS Executive Agency decisions. Under the Constitution, authority for creation and maintenance of armed forces is provided to the U.S. Congress. The U.S. Code, in particular Title 10 "Armed Forces," is the current legislation implementing the Constitutional authority provided to Congress for the creation and maintenance of armed forces, and is national law. DOD directives, issued by civilian authorities in the DOD, establish policy or order specific actions, and also have the force of law. JCS Executive Agency decisions give a single service assigned responsibility and delegative authority, which would otherwise be exercised by all the services collectively or individually.

Taken as a group, these represent the legal possibilities for dealing with the issues surrounding weapons of mass destruction. (See Figure 4.) The most permanent and least changeable is the U.S. Code, while Executive Agency is most flexible and amenable to change.

Major references to WMD are found in many locations in the U.S. Code:

Title 5: Civilians
Title 10: Armed Forces
Title 14: Coast Guard
Title 22: Foreign Relations
Title 32: Army National Guard
Title 38: Veterans Benefits
Title 40: Public Buildings/Public Works
Title 42: Public Health
Title 50: War and National Defense

Three Levels of Authority, Responsibility, and Budget Control.

Figure 4.

The result is a lack of comprehensive focus on the requirements for WMD warfare and overlapping jurisdictions, as well as the separation of nuclear issues from biological and chemical issues. All of the titles of the U.S. Code that deal with WMD require review for adequacy and consistency by the Judge Advocate General (TJAG).[26]

Existing U.S. Code, DOD directives, and Executive Agency decision memoranda that affect issues dealing with WMD were compiled over at least forty years. They do not fully address the problems with WMD and the evolving National Military Strategy. Problem areas fall into three categories: proponency issues, rapid access to reserve components, and control and protection of U.S. civilians on the modern battlefield.

Proponency.

Public Law 103-160 gives extensive responsibility to the Army with regard to chemical and biological weapons.

> The Secretary of Defense shall designate the Army as executive agent for the Department of Defense to coordinate and integrate research,

development, test, and evaluation, and acquisition, requirements for the military departments for chemical and biological warfare defense programs for the Department of Defense.

Unfortunately, however, proponency for training and doctrine are not addressed (though perhaps implied?) in PL 103-160, nor is proponency for radiological defense programs. And each service is still responsible for its own operational support.

A HQDA Task Force should be organized to examine the implications of PL 103-160, and determine whether consolidation and standardization of all missions and training required for effective WMD defense should or can be accomplished under the auspices of this law. Here are two examples:

First, the doctrinal question of area NBC reconnaissance and decontamination needs to be addressed as a joint issue on a WMD battlefield. A single integrated theater-wide response capability is necessary. The Army's Chemical School has the expertise to determine the appropriate doctrine and force structure in combination with other Army experts on environmental restoration, planning, and training.

Second, joint Air Force and Army chemical training is conducted at the U.S. Army Chemical School. The creation of a single, robust, joint Chemical School under Army Executive Agency would conserve resources and maintain expertise. Such a school should become the source of training for coalition partners as well as all DOD and contractor civilians.

Proponency for civilian protective equipment and training is also not addressed in current legislation or directives. An assumption of evacuation prior to WMD use may no longer be valid in regional conflicts or terrorist situations. U.S. family members reside in substantial numbers in many regions of potential attack and will need NBC protective equipment, if not already issued, available in close proximity. To expect service members to fight while family members remain unprotected may be unrealistic. The U.S. must decide whether

a policy similar to the Israeli response during the Iraqi Scud attacks (rapid dissemination of masks and equipment to the entire civilian population, including children and infants, at risk) is appropriate, and if so assign responsibility for equipment acquisition and training.

Rapid Access to Reserve Components.

The concern about the limitations of the Presidential Selected Reserve Call-Up (PSRC) has been addressed previously. The 102d Congress failed to act on the DOD request for Secretary of Defense authority for a 25,000 man reserve call up. There are many concerns that make this a critical issue. The PSRC is of a limited duration (ninety days with ninety day extension). Activation of reserve units for port and airfield duty will be needed as a crisis begins to emerge, not after it occurs. These personnel are pre-positioned before deployment begins. At the present time, volunteers are solicited to fulfill this critical function. Upward of 75 percent of U.S. chemical capability resides in the reserve components. Finally, the rise in terrorism as a weapon will be a direct threat to the CONUS. Protection of critical national assets such as nuclear power generating plants and vital transportation nodes will be important. The World Trade Center bombing in 1993 is a prototype for this kind of terrorist activity. Mobilization of reserves to meet this need may be critical.

This important legislative initiative was identified by the 1993 LAM and new legislation is before the present Congress for consideration. It is a fundamental building block for a force projection strategy adopted to meet the rapid emergence of regional contingencies.

Protection of U.S. Civilians on the Battlefield.

A consequence of our evolving force structure is the growing dependence on DOD civilians and contract civilians to perform essential tasks. This is implied in the Army's "Total Force" concept. Civilians responded admirably during the Persian Gulf War but this conflict highlighted a number of serious concerns. As the size of the

civilian contribution to the war effort enlarges as the military downsizes, it will be critical that several issues be resolved. Many of the solutions discussed on the following pages are in draft legislation, draft directives, or emerging plans. They are not yet fact. Because DOD civilians and contract civilians are different legal entities, they will be addressed separately.

DOD civilians are increasingly going to be subjected to many of the same risks and dangers as soldiers. Anticipated threats to rear areas and air and sea ports guarantee this increased risk. DOD civilians are already considered combatants, carry firearms, and are subject to the Geneva Convention. In many respects they are soldiers without military rank.

The Persian Gulf War illuminated a number of issues. It became obvious that physical standards needed to be applied to deployed civilians. In one example, the Disabilities Act was used to coerce the government to deploy to the combat zone, a civilian who was wheelchair bound. For other civilians, it was not clear that they could be forced to be deployed as a condition of employment. Title 5 of the U.S. Code gives these civilians and their labor representative rights and grievance procedures that take considerable time. DOD directive 1404.10 states that essential personnel can be assigned in any location as a condition of work. This directive has not been legally challenged yet, but some question its legality.

Proper pre-deployment physical screening, training, and equipping were not consistent during the Persian Gulf War. Command and control in the theater of operations was not standardized and it was not always clear what the chain of command was for certain groups of DOD civilians. A number of After Action Reviews identified these issues and have been staffed in DCSPER and DCSLOG. A number of publications are expected to be fielded to address these concerns. AR 690-11, *Planning For Use and Management of Civilian Personnel in Support of Military Contingency Operations,* and DA Pam 690-11, *Civilian Deployment Guide*, are expected to be published in late 1994. Draft DOD Directive 1400.31, *DOD Civilian Work Force Contingency and*

Emergency Planning and Execution, is expected to be approved in the same time frame. Under this directive, the Army is expected to be the executive agent for civilian mobilization, contingency, emergency planning and execution.

There are several issues that have not been addressed. First, most life insurance policies have war clauses. DOD civilians rarely have the opportunity to update their federal insurance and often purchase private policies. Few can obtain the insurance they need or desire.

Second, in the WMD environment, there may be long term health impacts. The present statute of limitations requires a claim to be filed within thirty days of the injury or the claimant is not eligible for care. With WMD effects known to last years to decades, the only recourse for these individuals is to sue the federal government. Legislation needs to reflect this long term problem.

Third, the mortuary and casualty affairs compensation is different between soldiers and civilians. Given the similar risk and expectation of duty, equality in this emotional area appears easy to assure.

In summary, DOD civilians will shoulder a greater portion of the war effort than ever before. They will be present on the battlefield in large numbers. Their performance will be critical to the success of the mission. As they will incur substantial risk, Army policy should clearly state that Department of the Army (DA) civilians will be logistically supported equivalent to soldiers, to the extent of law. Medical and financial issues such as life insurance need to be addressed. They will have the same risk, so they should enjoy the same protection.

Contract civilians are a different legal entity than their DOD counterparts. They are not covered by Title 5 of the U.S. Code, but are governed to a large extent by the contract under which they work. Since these are written in a myriad of places they are inconsistent and compliance with physical standards, deployability standards, and abilities is thought to be spotty. The biggest concern however, is

command and control once in theater. Whereas DOD civilians will come under an in-theater Logistics Support Element (LSE), the U.S. civilian contractors presently have no such arrangement. Once in theater, command and control will be difficult at best, especially if they arrive without higher levels of supervision. For criminal matters, they will fall under host nation law. In situations like Somalia, where no law exists, the only recourse is to send these individuals home.

If these individuals are placed under the supervision of a LSE like organization, the CINC will have some command and control ability. Likewise, it is in the best interest of the contractors to accept such an arrangement, as new equipment, medications, and replacement items can be distributed and accountability for personnel will be adequate. The issue of long term medical care, mortuary and casualty affairs, and life insurance are issues for these civilians also. If they are an essential part of the evolving U.S. way of war, they should enjoy the same protection for injury on the battlefield as their DOD counterparts.

Summary.

In summary, to successfully prosecute a major regional contingency by force projection of the Total Force into a WMD environment, major initiatives will have to be completed. These include Congressional passage of the Secretary of Defense authority for rapid mobilization of reserve components. Doctrine and proper planning for pre-deployment and deployment of DOD civilians need to be completed. Promulgation of adequate physical standards and timely provision of equipment and logistical support in theater need to be assured. As equal partners with the military in supporting the national defense, DOD civilians share the risks in the combat zone. They should also share in the medical and financial security this country provides in times of conflict to assure the civilian and his family of his country's support. Consideration should also be given to contract civilians who are also asked to serve and support the national defense. In summary, the distinction between civilians and soldiers is getting hazier. Civilian and military alike will share risk, expectation, and sacrifice.

Relevant U.S. Codes to WMD are spread throughout many individual codes and reflect forty years of incremental change. These need to be viewed as a whole with an eye to consistency and better lines of authority and accountability. Sections of law relating to seizure of property in times of war need to reflect the whole spectrum of conflict and uses of the military in today's environment. TJAG should undertake this role. Civil War legislation used in the Persian Gulf War needs to reflect the authority of international law.

The U.S. Army Chemical School is positioned to be the proponent for joint chemical warfare defense. With its decades of expertise, it is the natural leader in this arena. The Army should and probably will have, the major responsibility for training and equipping all civilians bound for the theater of operations. Likewise, the mission of area and theater reconnaissance, decontamination, and warning supervision and management should be an Army role and mission as a single theater, integrated system. The present system of three separate service systems in theater is inefficient and dangerous. The above responsibilities must be codified in law.

Public Law 103-160 gives the Army Executive Agency status and responsibility for chemical and biological weapon research, development, requirements, test and evaluation. Doctrine and training is implied. This needs to be incorporated along with the single theater manager concept into a coherent plan for organization and development. A HQDA Task Force should be established to coordinate and bring these elements together efficiently.

CAPABILITIES

The added importance of the U.S. defensive capabilities to our WMD deterrence was highlighted in the introduction. The signing of the Chemical Weapons Convention Treaty in January 1993 coupled with the Biological Weapons Convention of 1972 limit U.S. response options and require that the remaining elements of deterrence be credible. WMD defense capabilities are an integral part of this credibility. This section identifies capabilities that are essential to improve WMD protection and increase deterrence in accordance with the response options defined in joint doctrine: BMC4I; counterforce operations; active defense; and passive defense.

BMC4I.

The WMD environment greatly complicates battlefield management and necessitates new capabilities to maintain command and control. The use of WMD may arise suddenly, and the political, strategic, and psychological impact will require the CINC to have available a theater system that rapidly and accurately provides: theater warning of pending WMD use, rapid assessment of type weapon used, assessment of damage, potential for further damage, and requirements to treat the affected personnel and equipment.

Simultaneously and rapidly, the CINC must be able to coordinate the resources available to neutralize and decontaminate personnel, equipment, and key terrain. **This requires an integrated system, capable of performing these critical functions across traditional service boundaries. The anticipated involvement in coalition warfare will require theater wide coordination and support for allies, as well**. Present service oriented systems are not interoperable, duplicate some functions, while wasting resources and leaving key gaps elsewhere. With its expertise in the Chemical Corps and Chemical School, the Army could best coordinate all of these WMD requirements through a theater level system. PL 103-160 can be the

basis for proposing, testing, and funding a WMD theater-wide system and command arrangement.

Battlefield digitization is key to success in a WMD environment because it provides the ability to share quickly the same information with many stations. Digitization provides for the rapid processing and organizing of large amounts of data for easy access. Digitization is a tremendous force multiplier because: it allows the commander to make rapid, accurate MOPP level decisions and disseminate that information, thereby reducing the need to go to MOPP; it enables early warning of enemy or friendly WMD use; it identifies contaminated areas so that avoidance and protection measures can be taken.

Counterforce Operations.

Counterforce operations preempt the launch of and/or detonation of enemy WMD by destroying them in place. Successful counterforce operations depend on accurate intelligence and munitions. Real-time tactical intelligence for targeting and damage assessment is essential for sure, discriminate hard target kill capabilities, and effective counterterrorism-terrorism capabilities.[27] They must have the means to locate and counter diverse concealment, denial, and deception practices, and a reliable and accurate HUMINT capability, critical to the analysis of enemy intent. The capability to target and destroy WMD before and during U.S./coalition buildup, requires long-range, stand-off, precision guided weapons with a short time of flight to attack fleeting targets.

For the Army, the means to achieve these ends is provided primarily by the combined efforts of two key attack assets, whose roles have been poorly articulated in WMD defense policy discussions to date.

Special Operations Forces (SOF). SOF offer the advantage of conducting clandestine and discrete operations such as verifying enemy possession of WMD. In addition, SOF have the ability to

destroy WMD in a manner that limits the spread of contamination and/or collateral damage. SOF can be used behind enemy lines, as well as to counter WMD equipment, terrorists or adversary SOF.

Three elements are necessary to maximize SOF's counterforce capabilities:

- Training in technical aspects of WMD.
- An organic chemical, biological and radiological reconnaissance (detection & identification) capability.
- A rapid crisis response capability, perhaps with a standby, specialized WMD SOF unit.

Deep Attack Aviation and Artillery Forces. Army Aviation and Artillery assets (such as ATACMS) can engage WMD sites, especially artillery delivered chemical weapons. Both these attack assets can play an integral role in counterforce if WMD target sets are coordinated properly and airspace is intensively managed, and doctrine is developed.

Active Defense.

Active defense involves the interception and destruction of WMD in the act of delivery. As cruise and theater ballistic missiles appear to be the greatest current WMD threat, effective air and missile defense is a requirement for successful operations under the threat of WMD.[28]

An ideal architecture for such a defense is a multi-layered system. This would allow an interception soon after launch, sometimes called ascent or boost phase intercept (BPI); a second, high altitude, wide-area (or upper tier) interception capability, and a third, point or limited area (lower tier) defensive belt. The critical characteristic for this system is its layered redundancy, which should be pursued. Any approach which, by concentrating efforts on one of the layers, fails to provide for the others is dangerously unbalanced.

Also, because the WMD threat exists now, any strategy for effective active defense must not sacrifice near or mid-term capabilities for the promise of a magic bullet sometime in the future. Rather, it should build on current, lower tier Patriot (PAC-2) and HAWK systems, and continued development and fielding of systems available in the mid-term future, such as Patriot upgrades, Corps SAM, and the THAAD system. Simultaneously, the Navy's AEGIS system, coupled with vertically-launched, improved STANDARD or THAAD-based missiles, offers a mobile, easily deployable platform of significant value in a contingency. Simultaneously pursuing the development of all of these systems seems more than prudent.

Interception in boost phase, however, must be approached carefully. The obvious advantage of intercept at this point of flight is that the missile would still be over enemy territory, and any contaminants released by the destruction of the missile would fall there. An effective BPI system, however, appears still a long way off. Current concept systems require the orbit of friendly aircraft over enemy territory, and the necessary air superiority may not be as easy to achieve as it was in the Persian Gulf War, nor is permission to orbit aircraft over enemy territory before a conflict breaks out. Thus, the significant diversion of funds away from existing upper and lower tier programs to support current BPI concepts would not appear prudent.

Effective active defense depends upon capable and efficient acquisition and battle management systems. An efficacious acquisition system should include both ground (or sea) and space-based elements such as the BRILLIANT EYES space-based system. A surface system would be connected to theater-based ground or sea systems. A common-net command and control system must connect this layered acquisition system to the layered interceptor systems. Once, again, the multi-tiered nature of any active defense system is its most critical characteristic.[29]

In supporting this balanced, multi-tiered approach to Theater Missile Defense (TMD), there are two additional urgent requirements:

- An intelligence capability that will help U.S. forces identify the type of threat warhead to determine how best to destroy the missile while avoiding the release of agent.

- **The capability of killing low flying cruise missiles, UAVs and short range ballistic missiles**. The Corps SAM is being developed to close this gap.

Passive Defense.

As has been explained and emphasized several times already in this study, defensive WMD measures have gained relative importance in the U.S. deterrence posture. The key to operating in a WMD environment and mitigating their effects is MOPP training. The U.S. Army Chemical School, in the Combined Arms in a Nuclear/Chemical Environment (CANE) tests, found that "training to perform missions under NBC conditions has a rapid payback in unit effectiveness."[30] The test conducted with a combined arms force consisting of an augmented light infantry rifle company, combat support (CS), and combat service support (CSS) units revealed that, with 96 hours of intensive training, soldiers learned to operate in MOPP4 and were able to kill three times more OPFOR targets.

Given the likelihood that future ground operations will encounter WMD, there is an urgent requirement for CINCs to include integrated joint WMD defense training in peacetime exercises as well as pre-conflict operations. A robust WMD defense training program sends a clear message to potential adversaries. In addition, the following two training capabilities are strongly recommended:

- U.S. forces must work with coalition forces to ensure they conduct WMD defense training and can perform their missions in a WMD environment.

- The scope of NBC defense training must be expanded at the National Training Center (NTC) and Joint Training Center (JRTC), and in BCTPs, and other joint wargames.

Beyond training, the remainder of required passive WMD defense measures fall into 3 categories: avoidance, protection, and decontamination.

The creation of a high-technology, tactically mobile, strategically deployable chemical company capable of biological, chemical, and radiological reconnaissance is something that the Army should pursue as a matter of priority. Mounted in something akin to an updated version of the M93 Fox NBC reconnaissance vehicle, this unit could deploy quickly to or be forward-based in a threatened theater. It could then provide the Joint Force Commander with a key asset to cover his most critical units or installations. Ideally these vehicles would have long range, digital communications systems that would let them provide near-instant information to a digitized mobile force. The vehicle should provide its crew with the ability to conduct reconnaissance and mark contaminated areas while remaining protected within. These vehicles should have state-of-the-art navigation/position-locating equipment, and the communications equipment and cameras to permit experts to direct or conduct tests of contaminated samples from a great distance. Such a unit, with Third Wave capabilities, would be one of the first requested by a CINC for any contingency.

WMD Avoidance.

Primary WMD avoidance capabilities concern WMD data gathering and reconnaissance issues, such as detection, identification, warning, and reporting. The following capabilities are required to provide United States and Coalition forces with an adequate WMD avoidance posture:

- Lightweight, universal, and automatic detectors that can detect, identify, and alert forces, on an area basis, to the presence of chemical and biological hazards, and provide a reliable "all clear" indicator.[31]

- Special WMD reconnaissance units and detection equipment throughout the force. Units protecting particularly vulnerable

or critical sites such as ports and air bases must have such equipment. To assist in WMD effects avoidance the Army should create a high-technology, tactically mobile, strategically deployable, WMD reconnaissance company capable of biological, chemical, and radiological reconnaissance.

- A viable, interoperable, joint WMD Warning and Reporting System (JWMDWRS). This system must be capable of supporting coalition as well as U.S. forces, and as discussed earlier, must be tied into the TMD warning system.

- Improved camouflage/counterdetection systems that preclude an adversary from acquiring and targeting friendly forces with WMD.

- Improved intelligence systems that permit rapid identification of an adversary's intention to use WMD and the intended target(s). When combined with improved communications these systems could allow mobile targets to displace if the tactical situation otherwise permits.

WMD Protection.

WMD protection requires the development or improvement of the following capabilities:

- Low cost, lightweight protective equipment. The severe limitations of current MOPP equipment on all aspects of soldier and unit performance is well known.

> "In the protection arena, the problem is one of burden. Current individual protection systems cause serious degradation of normal battlefield functions..."[32]

- Appropriate hardening against the effects of EMP of all weapons, weapons support, and communications systems.

- Radiation protection equipment and/or improved acceptable exposure guidance. Tremendous knowledge has been

accumulated over the last two decades about the long term effects of even small dosages of radiation.

- Provisions to supply necessary equipment and training for U.S. civilians at risk. The emerging importance and presence of several different categories of U.S. civilians in the theater will be a major problem unless they receive the necessary equipment and training. The presence in potential WMD threat areas of family members needs to be addressed since adequate warning for evacuation may not be possible.

Current weaknesses in these capabilities could severely degrade theater forces combat effectiveness in a WMD environment.

WMD Decontamination.

Because perfect avoidance and protection will never be achievable, an urgent requirement exists to develop decontaminants for equipment and terrain at ports, air bases, and supply points. In addition, there is an immediate need to develop capabilities for properly decontaminating and treating contaminated mass casualties, as well as procedures for safely disposing of chemically, biologically, or radiologically contaminated dead.

> "Current decontamination capabilities are archaic, imposing serious burdens on logistics systems, and certainly not in keeping with a warfighting strategy requiring mobile forces and global employment capabilities."[33]

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, several themes recur throughout this study. First, there is a lack of realization of the likelihood of these WMD being used. In order to correct this, Army doctrine must discuss WMD; simulations and exercises, particularly BCTP, must include them, and the National Military Strategy must take their use into account. Preparation is a critical aspect of deterrence.

Second, the Army, as the executive agent for NBC defense research, development, and acquisitions, should be resourced to provide operational support to the other services ashore in the theater of operations. CINCs could then expect the Army to fulfill all their needs in land WMD defense missions. Alternatively, the creation of a Joint Chemical Corps should be considered.

Finally, the emerging importance of civilian support to combat operations must be appreciated. Future combat effectiveness may turn on how well the protection and training of many categories of civilians in the WMD environment are addressed. This will require training, special equipment, and organizational doctrine.

Although among the services the Army has the greatest existing capabilities to bring to bear on the WMD conundrum, it should not be expected to do so out of *existing* resources. Assigning responsibility without proper resourcing will threaten Army Operational Readiness and result in budgetary squabbles that will needlessly delay critical WMD capabilities. DOD must forthrightly recognize the importance of the WMD mission by providing additional resources to the responsible service.

Doctrinal Issues.

- Doctrine should condition U.S. forces to expect to operate in a WMD environment. Weapons of mass destruction and their vehicles of delivery have already proliferated; the discussion of WMD defensive and retaliatory measures should now pervade all doctrine. The Army should undertake a comprehensive doctrinal review to ensure that discussion of the threat of WMD -- and the ways to mitigate it and respond to it -- pervades future doctrinal publications.

- An analysis of the WMD threat must be a major part of the Intelligence Preparation of the Battlefield for future campaigns. Such analysis must treat both enemy capabilities and friendly vulnerabilities. Current IPB manuals neglect discussions of WMD. This must be changed.

- Joint and Army logistics doctrine must prescribe methods to sustain forces conducting operations under the threat of WMD. It must analyze friendly vulnerability and offer suggestions to mitigate the threat. Stand off logistics has great potential in this regard.

- Doctrine must prescribe that passive defense requires centralized control to ensure the most efficient use of limited assets. It must also recognize the leading role that the Army will play in the passive defense of the joint force.

- Joint doctrine needs to recommend the designation of a single theater manager at joint headquarters to advise and assist the JFC in the organization and direction of passive defense.

- Army doctrine, which concentrates WMD defensive units and capabilities forward of the corps rear boundary, should re-direct its focus, concentrating assets to protect vulnerable areas most critical to the joint campaign. Often these areas will be in the theater base.

- Joint doctrine needs to address WMD protection of DOD civilians, contractor personnel, military dependents, host nation support personnel, and third country nationals.

- Future versions of FM 100-5 (and FM 100-7) should include a comprehensive discussion on how to integrate the offensive use of WMD into campaign planning. The discussion should treat both the theory and practice of WMD attack.

- The four pillars of passive defense, active defense, counterforce operations and BMC4I, are the proper framework for analysis of WMD defense. All future doctrine should employ this framework in discussions of operations in the WMD environment.

- Doctrinal authors should review the doctrine published in the 1950s and draw lessons and ideas from a period when the threat of WMD was immediate and was taken very seriously. Many of the current problems were addressed before, but the solutions were forgotten.

Title 10.

- Renew efforts aimed at passage of the 25,000 man Secretary of Defense call-up authority for the reserve components. Because approximately 75 percent of chemical capability is in the reserves, this authority is critical to successful WMD mission accomplishment.

- Test current doctrine and plans for DOD civilian predeployment and deployment training and equipping in future LAM scenarios, to include command and control arrangements.

- Educate military personnel about their responsibility toward DOD and contract civilians in the WMD environment, and the critical role of these civilians in the Total Force.

- Provide deployed civilians equitable access to long term medical care, mortuary affairs, and insurance commensurate with their service member counterparts.

- Review the U.S. Code for WMD issues. Because of the incremental changes to this body of law over the last 40 years, it requires review for consistency, proponency and organization.

- Review the adequacy of Civil War era legislation used in the Persian Gulf War to seize property. Determine its consistency with present national and international law, and whether it can be applied to hostile Operations Other Than War scenarios.

- Establish the U.S. Army Chemical School as the joint service executive agency for chemical defense training and doctrine development, serving as the source of all civilian DOD and contractor training.

- Develop policy and provide equipment to protect family members and non-DOD civilians in the theater of operations from WMD effects. With short warning times in many areas of the world where family members are deployed, it is unlikely that timely evacuation can always be accomplished.

- Identify a single integrated theater command responsible for theater reconnaissance, decontamination and warning.

- Establish a HQDA task force to address coherently the implications of PL 103-160 and to integrate the issues discussed above. Such a task force is the best way to ensure that Army issues are properly represented in future Joint WMD plans and doctrine.

Capabilities.

- Build an initial theater anti-missile defense based on the current lower tier Patriot (PAC-2) and HAWK systems, and continue to push for systems available in the mid-term future (PAC-3, Patriot Multi-mode, Corps SAM, and THAAD) to handle cruise and theater ballistic missiles.

- Develop, in addition to the threat of nuclear weapons, an alternative response to belligerent use of chemical and biological weapons.

- Continue to examine the feasibility of boost/ascent phase intercept (BPI).

- Develop WMD detection and target acquisition systems that include both ground (or sea) and space-based elements such as BRILLIANT EYES, and a common-net command and control system to connect the layered acquisition system to the layered interceptor systems.

- Augment deep attack aviation and artillery assets and a specialized WMD SOF capability.

- Expand the scope of WMD training and integrate it in all Army, Joint and coalition exercises and wargames. Use automation and virtual reality training systems in WMD warfighting exercises to enhance realism and make WMD training affordable.

- Establish an automated, joint, interoperable, WMD Warning and Reporting System (JWMDWRS) that is integrated with the TMD system to assist in the decentralization of MOPP decisionmaking and provide warning information simultaneously to all theater units. Expand the Army NBC Information System (ANBCIS) currently in development to operate in a joint and combined environment.

- Focus the immediate attention of DOD and CINC planners on the whole issue of WMD protection for all categories of theater support personnel, and the defense of ports, airfields and supply points.

- Prepare the Army to lead joint and combined decontamination and environmental restoration efforts. The capabilities, doctrine and training required to provide the necessary expertise to the other services to accomplish this task, should be developed.

- To further refine the necessary capabilities, casualty scenarios for operations in a WMD contaminated environment must be exercised and validated in a field environment.

- Establish credible and realistic radiation tolerance levels for all categories of theater support personnel, combatant and noncombatant, and be prepared to mount a legal and public relations effort to sell them to Congress and the American public.

- Insure that requirements documents for new critical electronic developmental items are screened to consider EMP hardening as a feature and require a risk-assessment and impact statement on adding/omitting EMP hardening as a prerequisite to accepting a requirements package.

- Design Mobilization TPFDDs so that critical chemical units, such as reconnaissance units, are among the first to deploy.

- Designate WMD intelligence and digitized information for locating, targeting, conducting post-strike assessments and disseminating warning and reports, as separate subject areas in the Army Modernization Plan (AMP), the Army Intelligence Modernization Plan (AIMP), and the Army Science and Technology Master Plan (AS&TMP).

ANNEX A

NOMENCLATURE, DOCTRINE, AND STRATEGY PROBLEMS WITH THE TITLE "WMD"

The term "weapons of mass destruction", or WMD, is an old Soviet term used during the Cold War. It is neither specific nor descriptive. Its current use implies NBC (nuclear, biological, and chemical) weapons and/or other weapons. This may lead to dangerous confusion and misunderstanding.

The first area of confusion is that the weapons included in the category "WMD" are not necessarily weapons of "mass destruction". Chemical weapon use, even in World War I had rather limited local effects, and against prepared troops, little effect. Compared to the massive conventional casualties in this war, chemical weapon injuries were much smaller. Biological weapons, relatively new on the warfare scene, have not been tried on the modern battlefield. Their actual effects and capabilities are unknown. Only nuclear weapons have traditionally been tied to "mass effects" with the destruction of large numbers of people and territory. However, research over the last three decades have resulted in "tactical nuclear weapons" with limited destructive power. Lumping all three of these weapon types and their gradation of destructive power under one title with one type of response is neither credible nor smart.

Second, these weapons do not share: 1) mechanism of injury; 2) preventive measures; 3) basic science requirements; 4) sophistication; 5) or residual effect. In fact, they do not share anything except the terror aspect they impose on political leaders, populations, and perhaps armed forces in the field. There are high psychiatric casualty rates from these types of weapons.

These weapons should be referred to by their separate categories, nuclear, biological and chemical (NBC). This was the practice at the beginning of the Cold War. Each weapon type was distinctly identified, properly defended against, and had designed counterstrategies. Subsuming all together is not functional in any dimension.

Third, the term "WMD" is so poorly defined that it will allow other enemy nations to label any effective new U.S. weapon (Fuel Air Explosive, Incapacitation Agents, Directed Energy Weapons, even non-lethal technologies) a weapon of mass destruction and therefore justify the use of their own "WMD" weapons.

Finally, combining nuclear, biologic, and chemical weapons into one category invites trades within the group on the battlefield when none is intended. For example, U.S. nuclear retaliation is implied for enemy chemical or biological uses, such as a nuclear strike for a chemical attack. Using this strategy against a nation that possesses nuclear weapons will introduce a second "WMD", nuclear weapons, onto the battlefield. The U.S. is not likely to do this.

In summary, the term WMD is used to imply commonality where none exists, except perhaps in the terror aspect of the weapons. It is a dangerous precedent. The term WMD should be replaced with specific terms, which will allow policy makers greater flexibility in developing responses that will add a credible dimension to our deterrent policy.

ENDNOTES

1. In multiple wargames where U.S. forces are attacked by WMD, a response trend has emerged. Participants, faced with the realities of contaminating coalition country terrain or inflicting large numbers of civilian casualties, have largely rejected nuclear counterforce and countervalue responses in favor of conventional strikes. See for example, Dan Fox, *Atoms for Peace,* Rand Corporation, 1994.

2. Joint Chiefs of Staff, *Joint Pub 1-02, DOD Dictionary of Military and Associated Terms,* 1 December 1989, p. 396.

3. Department of the Army, *FM 100-5, Operations,* June 1993, p. 6-10.

4. Joint Chiefs of Staff, *Joint Pub 3-0, Doctrine for Joint Operations,* September 9, 1993, p. IV-27. Hereafter cited *as Joint Pub 3-0*.

5. *FM 100-5,* p. 6-10.

6. Joint Pub 3-0, p. IV- 28.

7. See for discussion, Joint Chiefs of Staff, *Joint Pub 3-12, Doctrine for Joint Nuclear Operations,* April 29, 1993, p. I-2. Hereafter cited *as Joint Pub 3-12*.

8. Joint Pub 3-12, p. III-5.

9. For discussion of the need for a quick termination, see *FM 100-5,* p. 6-10, and *Joint Pub 3-0,* p. IV-28.

10. This imperative is found in many places in doctrine, see especially *FM 100-5,* pp. 6-10 & 6-11.

11. Joint Chiefs of Staff, *Joint Pub 3-01.5, Doctrine for Joint Theater Missile Defense* (Proposed Pub), December 1993, p. I-3. Hereafter cited as *Joint Pub 3-01*.5.

12. *Ibid., p.* III-7.

13. Joint Chiefs of Staff, *Joint Pub 3-11, Joint Doctrine for Nuclear, Biological and Chemical (NBC) Defense* (Final Draft), February 1993, p. III-8. Hereafter cited *as Joint Pub 3-11*.

14. Department of the Army, *Field Manual 3-100, NBC Defense Chemical Warfare, Smoke, and Flame Operations,* May 23,1991, p. 8-2. Hereafter cited as *FM 3-100.*

15. *Joint Pub 3-01*. 5, p. II-2.

16. *Ibid.*, p. III-22, and *FM 100-5*, pp. 6-10 & 6-1 l.

17. *Ibid*.

18. This conclusion was drawn from a number of DOD briefings, including "Path to Counterproliferation Acquisition Strategy," and DAMO-FDB briefings on "Louisiana Maneuvers, FY 94 Issue, Weapons of Mass Destruction," the slides for which were made available by DAMO-FDB.

19. *Joint Pub 3-12*, p. III-3, *Joint Pub 3-0*, p. IV-28, and *FM 100-5*, p. 6-10.

20. Department of the Army, *FM 100-30, Nuclear Operations*, (Initial Draft), January 1994, passim.

21. Department of the Army, *FM 100-7, The Army in Theater Operations*, (Final Draft), April 4, l994, p. 5-10.

22. The issue of deterrence policy, and how and where to retaliate is an issue over which coalitions may collapse. WMD greatly complicate coalition management.

23. *FM 100-5*, pp. 6-10, 6-11, *Joint Pub 3-0*, pp. IV-26, IV-29.

24. *FM 100-5*, pp. 2-10, 2-11.

25. See for example, "Settlement Readied on Atom Plant: Energy Dept., Workers Agree on $20 million," *Washington Post*, July 27, 1994, p. A25.

26. Although not WMD specific, an example of the need for review is found in Title 50. Because of the expiration of the DOD Procurement Act of 1950, it was necessary to use Civil War era legislation, the Food and Forage Act, during the Persian Gulf War to enable U.S. forces to procure needed property. A more current legal basis that reflects modern U.S. and international law needs to be written and made permanent law.

27. "Countering the Proliferation of Ballistic Missiles and Weapons of Mass Destruction," *SAIC Briefing*, February 18,1993.

28. The recognition of theater ballistic and cruise missiles as the premier threat is well articulated in, LTC Robert F. Mathis Jr., *DAMO-SSP Talking Paper*, April 4,1994.

29. The best short discussion of Theater Missile Defense and Ballistic Missile Defense is found in two Ballistic Missile Defense Organization publications entitled, *U.S. Theater Missile Defense Initiative (TMDI)*, July 1993, and *U.S. Ballistic Missile Defense Programs*, June 1993.

30. U.S. Army Chemical School, *Summary Evaluation Report for Combined Arms in a Nuclear/Chemical Environment (CANE) Force Development Test & Experimentation (FDTE): Close Combat Light*, May 1993.

31. MG (Ret) John K. Stoner Jr., "Chemical, Biological Warfare Defense under the Chemical Weapons Convention," *AUSA Land Power SA Series #93-3*, April 1993.

32. *Ibid.*

33. *Ibid.*