

Project AIR FORCE

# INTERNATIONAL LAW AND THE POLITICS OF URBAN AIR OPERATIONS

---

*Matthew C. Waxman*

20000626 087

RAND

The research reported here was sponsored by the United States Air Force under Contract F49642-96-C-0001. Further information may be obtained from the Strategic Planning division, Directorate of Plans, Hq USAF.

ISBN: 0-8330-2816-2

RAND is a nonprofit institution that helps improve policy and decisionmaking through research and analysis. RAND® is a registered trademark. RAND's publications do not necessarily reflect the opinions or policies of its research sponsors.

© Copyright 2000 RAND

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2000 by RAND

1700 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

1333 H St., N.W., Washington, D.C. 20005-4707

RAND URL: <http://www.rand.org/>

To order RAND documents or to obtain additional information,  
contact Distribution Services: Telephone: (310) 451-7002;

Fax: (310) 451-6915; Internet: [order@rand.org](mailto:order@rand.org)

Project AIR FORCE

**INTERNATIONAL  
LAW AND THE  
POLITICS OF  
URBAN AIR  
OPERATIONS**

---

*Matthew C. Waxman*

Prepared for the United States Air Force  
Approved for public release; distribution unlimited

RAND

**DTIC QUALITY INSPECTED 4**

---

---

## PREFACE

In fiscal year 1998, under the sponsorship of the U.S. Air Force Director of Strategic Planning, RAND's Project AIR FORCE's Strategy and Doctrine Program began an examination of the future of urban warfare and the role the U.S. Air Force might play. Our goal is to help the Air Force develop concepts of operation to conduct joint urban military operations effectively and at lower risk to U.S. forces. Better exploitation of aerospace force capabilities can potentially offer U.S. decisionmakers a broader and richer array of options to deal with urban challenges across the spectrum of conflict.

This report, which stems from the larger research project, examines the legal and political context within which urban air operations would take place. It should be of interest to strategists, planners, and policymakers who seek to understand how international legal norms and political pressures constrain—and facilitate—air operations and how emerging technologies may or may not mitigate the effects of these constraints. It should also interest members of the international law community who seek to understand how law and political pressures affect military decisionmaking and vice versa. Comments are welcomed and may be addressed to the author (Waxman@aya.yale.edu) or the program director, Dr. Zalmay Khalilzad.

### PROJECT AIR FORCE

Project AIR FORCE, a division of RAND, is the Air Force federally funded research and development center (FFRDC) for studies and

analysis. It provides the Air Force with independent analysis of policy alternatives affecting the deployment, employment, combat readiness, and support of current and future aerospace forces. Research is performed in four programs: Aerospace Force Development; Manpower, Personnel, and Training; Resource Management; and Strategy and Doctrine.

---

---

## CONTENTS

---

Preface .....	iii
Figures .....	vii
Summary .....	ix
Acknowledgments .....	xvii
Chapter One	
INTRODUCTION .....	1
Chapter Two	
THE LAW OF ARMED CONFLICT AND	
URBAN AIR OPERATIONS .....	5
The International Legal Regime: Fundamental Concepts ....	7
International Legal Constraints on Air Operations .....	11
The Challenge of Urban Environments .....	18
Population Density and Geographical Proximity .....	18
Shared Military-Civilian Resources .....	20
Media Coverage .....	22
Conclusion .....	24
Chapter Three	
POLITICAL CONSTRAINTS ON URBAN OPERATIONS .....	25
American Casualty Sensitivity .....	26
Sensitivity to Collateral Damage and Civilian Suffering .....	28
Restrictive Rules of Engagement and Targeting .....	31
Coalition Operations and Military Operations	
Other Than War .....	38

---

Coalitions and Diplomatic Constraints .....	38
MOOTW and Additional Constraints .....	40
Conclusion .....	41
Chapter Four	
THE DYNAMICS OF ASYMMETRICAL CONSTRAINTS AND ADVERSARY EXPLOITATION .....	43
Propaganda and the Asymmetry of Constraints .....	45
The Dynamics of Constraints and Adversary Incentives to Breach .....	46
Urban Environments and Adversary Exploitation of Asymmetrical Constraints .....	48
Conclusion .....	53
Chapter Five	
TECHNOLOGY AND FUTURE CONSTRAINTS ON URBAN AIR OPERATIONS .....	55
Precision Technology .....	56
Informational Capabilities .....	60
Nonlethal Weapons, Electronic/Information Warfare, and Limited-Effects Munitions .....	63
Conclusion .....	66
Chapter Six	
CONCLUSION .....	69
Bibliography .....	73

---

---

## FIGURES

---

1. Force Protection Versus Collateral Damage Avoidance . . . . . 34
2. Enemy Exploitation of Asymmetrical Constraints . . . . . 47

---

## SUMMARY

---

Some of the most limiting constraints on future U.S. military actions in urban environments are not going to be technological or operational; they are going to be legal and political. Recent U.S. and coalition operations in the Balkans and elsewhere have been marked by heated controversy over target selection and have demonstrated the difficulty of balancing the often competing concerns of avoiding collateral damage, minimizing risk of U.S. casualties, and maximizing military effectiveness.

Urban environments pose enormous difficulties for those planning and conducting military operations within the boundaries of international law and self-imposed political constraints. The speed and agility of air power, combined with its ability to deliver firepower precisely and with relatively low risk to U.S. personnel across the spectrum of conflict, often make it the military instrument of choice for policymakers. However, the heightened risk of collateral damage when operating in urban environments partially offsets U.S. technological superiority. The features of urban environments also provide adversaries with expanded opportunities to exploit U.S. adherence to certain norms by using human shields and propagandizing civilian injuries. As a result, the urban combat options available to planners and decisionmakers are generally far narrower than the domain of the feasible.

Continued technological advances in critical areas such as precision guidance and target identification may help alleviate some of the conflicting legal, political, and operational pressures facing planners.

But technological improvements will not be a panacea. Indeed, technological advances may intensify or tighten legal and political constraints on military operations. The United States Air Force (USAF) should be cautious in its expectations about its ability to free U.S. decisionmakers from the complex set of constraints that bind them.

### **INTERNATIONAL LEGAL CONSTRAINTS**

The international law of armed conflict obliges attackers and defenders to take precautions to reduce the risk of collateral damage and civilian injury. In an effort to balance the demands of military necessity with humanitarian concerns, the legal regime requires that attackers discriminate between combatants and noncombatants, and between military assets and civilian property. It further requires that attackers refrain from actions likely to cause civilian damage or injury disproportionate to the expected military gain.

At the same time that it regulates the actions of attackers, the international legal regime prohibits a defender from deliberately increasing risks to its own population—for example, by commingling civilian and military persons or assets in an effort to shield military targets from attack. Some adversaries may breach this restriction, creating dilemmas for U.S. planners seeking to hold down the risk or level of civilian injury that results from military operations.

The risk of collateral civilian damage resulting from air operations is often magnified in urban settings, where military and civilian assets are collocated and sometimes difficult to distinguish. Not only does the urban environment, by connecting and closely packing both military and civilian resources, increase the chances that military attacks will injure civilians or destroy civilian property, but it increases the likelihood that even relatively small destructive impacts can unleash substantial reverberating effects on the urban population. As recent NATO actions over Kosovo attest, these potentials raise a number of international legal concerns for planners, especially as operational decisions come under increasing media scrutiny at home and abroad.

### **POLITICAL CONSTRAINTS**

The duties imposed by the international law of armed conflict are

supplemented by an additional set of constraints on planners: constraints driven by political forces. Public and coalition sensitivity to friendly casualties and collateral damage or civilian injury may reduce operational flexibility more severely than does adherence to international law.

Political constraints derive from the need to maintain minimum levels of support for military operations among three audiences: the domestic public, the international community (most notably major and regional U.S. allies), and the local population in the conflict area. The relative weights of these audiences' opinions on U.S. decisionmaking vary considerably with context and type of operation. When key U.S. interests are at stake, as in the Gulf War, decisionmakers are less likely to adapt operations to placate international dissent; when peripheral interests are at stake, as in the case of the Bosnian conflict, the relative importance of diplomatic backlash naturally rises and decisionmakers will tailor operations accordingly. During full-scale combat operations, the demands of the local populace will typically concern U.S. decisionmakers and planners less than during peacekeeping or humanitarian operations, where perceived impartiality and maintaining consent of factional parties may be critical to success. Even when U.S. vital interests are at issue, these pressures affect strategic decisions about when and whether to conduct military operations at all, as well as operational decisions including choice of forces, weapons, and rules of engagement.

### **Casualty and Collateral Damage Concerns**

Today, most U.S. military operations are planned and conducted with high sensitivity to potential U.S. casualties. Policymakers and planners generally fear that U.S. casualties may erode support for sustained operations, especially if the public views imminent victory as unlikely.

At the same time, U.S. military operations are also planned with concern for minimizing collateral damage, although, as with American casualties, policymakers' and public sensitivity to collateral damage depends on a number of other factors such as the interests at stake. Even when the U.S. public appears willing to tolerate collateral enemy civilian injury, other members of the international community may not, and the risk of either public or international backlash is typically enough to severely constrain U.S. air operations.

Political concerns about U.S. or allied casualties and risks to civilians often pull decisionmakers in opposite directions. Efforts to reduce the vulnerability of U.S. and allied forces without sacrificing military effectiveness may entail greater risks for civilians in the conflict area; efforts to reduce the risk of collateral damage may require placing U.S. and allied forces in greater danger. During NATO's recent Allied Force operations over Kosovo, for instance, the requirement that U.S. ground-attack aircraft stay above 15,000 feet to minimize risks to aircrews from shoulder-fired antiaircraft weapons helped satisfy political pressures to avoid U.S. casualties, but it probably resulted in higher chances of misidentification of civilian vehicle traffic as the enemy.

Targeting policies and rules of engagement are the most visible mechanisms through which legal and political constraints manifest themselves during operations. A key planning challenge is to select from among the politically and legally acceptable options while still achieving satisfactory levels of military effectiveness. As higher levels of military effectiveness are demanded while legal and political parameters remain stringent, the aperture of practicable options closes.

Events taking place during the course of operations may dramatically alter the strictness of rules of engagement and targeting policies, and planners must not only anticipate political shocks likely to give rise to increased strictness but also plan to prevent those that might undermine military and strategic effectiveness. Sometimes, such as prior to the Linebacker operations in Vietnam and following initial phases of Allied Force operations over Kosovo, political constraints are lifted to *expand* targeting options and operational flexibility. In many instances, however, rules of engagement constrict during a campaign or operation, as they did following the Al Firdos bunker bombing during Operation Desert Storm and, briefly, following several tragic incidents of mistaken target identification in Kosovo. The potential for sudden constrictions is of particular concern to planners because they cannot always predict how political currents may shift in response to contingencies.

## **Coalition Operations and Military Operations Other Than War**

The United States often conducts military operations as part of a multinational coalition. Coalition-building adds legitimacy at home and abroad to military operations, and coalition partners sometimes contribute valuable military assets (including ground troops) or provide basing or overflight privileges. One price of coalition support, however, is generally an added layer of constraints on uses of military force.

A related set of issues—and an additional set of constraints—arises in the context of military operations other than war (MOOTW). These operations are typically conducted under the auspices of international organizations or ad hoc coalitions, and the particular demands of peacekeeping, securing relief aid, and other tasks may demand tight limitations on the use of force. As the Somalia case demonstrated so vividly, any escalatory steps by intervening forces can swiftly erode both local and coalition support. In humanitarian or peace operations, more so than in warfighting, even the smallest tactical moves may have grave strategic effects.

## **ADVERSARY EXPLOITATION OF ASYMMETRICAL CONSTRAINTS**

U.S. forces generally operate under much tighter legal and political constraints than do their adversaries. Adversaries, knowing this, will likely take steps to exploit the asymmetry. Just as U.S. planners design strategies around adversaries' perceived "centers of gravity," those adversaries can be expected to do likewise and target what they see as the United States' center of gravity: its "political will." Adversaries often try to prey on apparent U.S. sensitivities to casualties and collateral damage, and the potential of these effects to erode public or allied support for sustained operations.

Opportunities for exploiting constraints on U.S. operations expand in the urban environment. Knowing that U.S. planners and operators are obliged to verify their target objectives, adversaries can disperse dual-use sites, camouflage military assets, and otherwise hinder U.S. information-gathering. Knowing that U.S. planners and operators will avoid incidental civilian losses, adversaries can commingle military and civilian assets and persons ("human-shield"

tactics). And knowing that U.S. planners and operators will avoid attacks likely to cause excessive civilian damage, adversaries can manipulate the media following attacks to portray exaggerated destruction.

The problems of conducting urban air operations under tight legal and political constraints are particularly acute when confronted with irregular enemy forces. Adherence to the principles of target discrimination becomes much harder when there are few, if any, physical markings to distinguish combatants from noncombatants.

## TECHNOLOGY AND MITIGATING THE EFFECTS OF CONSTRAINTS

Much attention, both inside and outside the USAF, has centered on technological solutions to the dilemmas confronting planners, because some technologies offer promise for mitigating the *effects* of legal and political constraints on air operations. Key to many of the issues discussed in this report is the problem of collateral damage, which itself is largely a product of three factors: (1) information about exactly where a military target is, (2) the ability to aim at and hit a desired point, and (3) the ability to regulate the quantum of destruction a hit inflicts. Technological advances in several key areas can help address each of these factors. Key areas include

- Precision guidance and targeting
- Information collection and processing
- Nonlethal weapons
- Information/electronic warfare.

Technological advances, by reducing the probability and extent of collateral damage, can be liberating for planners: together with new operational concepts, they can help reduce the risk and extent of collateral damage, and other risks that legally and politically constrain air planners and operators. The unique capabilities of U.S. air forces, enhanced by continued technological advances in key areas, will give the USAF a key role in future urban operations across the spectrum of conflict.

However, technological development alone is insufficient to eliminate tradeoffs between military effectiveness and politico-legal

demands. Competing pressures to simultaneously minimize U.S. force vulnerability and civilian injury will likely grow along with, *and in some part because of*, enhanced technological capabilities, and adversaries' means and methods of exploiting those pressures will evolve as well. Not only will legal and political constraints influence future air operations, but future air operations will in turn influence those constraints.

---

## ACKNOWLEDGMENTS

---

I am indebted to many individuals who aided in the development of this report. Alan Vick, the project leader, provided immense support and input throughout this research effort, as did the other members of the urban warfare project team: David Frelinger, Stephen Hosmer, Joel Kvitky, Benjamin Lambeth, Jefferson Marquis, and John Stillion. Zalmay Khalilzad oversaw the research effort and added many useful insights. LtCol Hank Andrews, Daniel Byman, W. Michael Reisman, Jeremy Shapiro, and Ruth Wedgwood provided excellent ideas and critiques.

Major General Norton Schwartz, Director of Air Force Strategic Planning, sponsored this study, and two members of his staff, LtCol Robert Stephan and Maj Jeff Newell, contributed many useful suggestions. Major Jeffrey Walker and Col M. Schlabs, USAF/JA International and Operations Law Division, provided valuable support and ideas; Maj Walker also offered a number of superb comments on earlier drafts.

Finally, I thank Thomas McNaugher and Mark Shulman for their thoughtful and penetrating reviews of an early draft.

---

**INTRODUCTION**

---

Some of the most limiting constraints on future U.S. urban military actions are not going to be technological or operational. They are going to be legal and political. Recent U.S. and coalition operations in the Balkans and elsewhere have been marked by heated controversy over target selection and have demonstrated the difficulty of balancing the often competing concerns of avoiding collateral damage, minimizing risk of U.S. casualties, and maximizing military effectiveness.

To be sure, legal and political constraints are not independent of technological and operational constraints—expanded capabilities or new operational concepts may provide means of reducing or avoiding collateral damage and enhancing force protection, and they may inform the public perceptions that drive legal and political constraints. But, in planning for urban combat, the most salient limitations on U.S. military action are often self-imposed, in the form of adherence to international legal norms and restrictive rules of engagement to satisfy public and diplomatic pressures.

Urban environments pose enormous difficulties for those planning and conducting military operations within the boundaries of international law and self-imposed political constraints. The speed and agility of air power, combined with its ability to deliver firepower precisely and with relatively low risk to U.S. personnel across the spectrum of conflict, often make it the military instrument of choice for policymakers. However, the heightened risk of collateral damage when operating in urban environments partially offsets U.S. technological superiority and provides adversaries with expanded opportu-

nities to exploit U.S. adherence to certain norms. As a result, the urban combat options available to planners and decisionmakers are generally far narrower than the domain of the feasible.

The primary purpose of this report is to place urban air operations in their legal, political, and diplomatic context and therefore lay the foundations for assessing United States Air Force (USAF) urban warfare capabilities across the range of potential tasks. “Urban operations” are defined for this purpose as any operations (from humanitarian aid to conventional war) on terrain that is dominated by man-made features, whether it is a small town or large city. The report gives particular attention to urban military operations other than war (MOOTW), because air operations in this context are especially difficult and may become common, but the issues presented throughout much of the text apply to conventional combat operations as well. It also draws heavily on strategic air campaign planning experiences during the Vietnam and Persian Gulf wars and, more recently, NATO operations over Kosovo because, although these operations do not lie at the center of this research, they spotlight the most salient competing pressures that constrain planning of all air operations.

After briefly outlining the key principles and relevant provisions of the international law of armed conflict regime, the report addresses the following issues:

- What difficulties will planners face as they design urban operations within *international legal* parameters? (Chapter Two)
- How are these difficulties exacerbated or supplemented by *political* constraints on U.S. military operations? (Chapter Three)
- How might adversaries attempt to exploit for tactical or strategic gain the operational inflexibility imposed by U.S. adherence to legal and political constraints? (Chapter Four)

The report concludes by discussing the potential for technological advances in certain key capability areas to mitigate the effects of legal and political constraints (Chapter Five), and by offering conclusions to guide planners and policymakers in the future (Chapter Six).

It is critical to address all of these issues in a single discussion because law, politics, technology, tactics, and strategy all form a

single system. Law and politics drive strategy, which in turn drives tactical decisions and efforts to promote certain technologies. But both evolution in strategic doctrine and technological changes affect public expectations, which in turn drive politics and sometimes ultimately law. All of this occurs while potential adversaries change their own strategy and tactics in response and develop or incorporate new technologies as well. This report seeks to explain not only how legal and political constraints will influence future air operations but how future air operations will influence those constraints.

---

**THE LAW OF ARMED CONFLICT AND  
URBAN AIR OPERATIONS**

---

The law of armed conflict<sup>1</sup> is the body of norms regulating the conduct of states and combatants engaged in armed hostilities. International law generally derives from both treaties (conventions and agreements among states) and custom. The contemporary law of armed conflict regime draws heavily from the Hague Conventions, negotiated at the peace conferences of 1899 and 1907, and the Geneva Conventions,<sup>2</sup> as well as numerous agreements that limit the means and conduct of hostilities.<sup>3</sup> Equally, and in some instances more, important for regulation of air operations is “customary law.”<sup>4</sup>

---

<sup>1</sup> The term “law of war” is often used interchangeably with “law of armed conflict,” even though the legal requirements placed on parties sometimes depend on the type of conflict or operation being waged. This report is concerned with the legal norms that apply across the spectrum of conflict and, for clarity’s sake, employs throughout the term “law of armed conflict.” On the applicability of the law of armed conflict to military operations other than war, and some ambiguities surrounding this issue, see Timothy P. Bulman, “A Dangerous Guessing Game Disguised as Enlightening Policy: United States Law of War Obligations During Military Operations Other Than War,” *Military Law Review*, Vol. 159 (1999).

<sup>2</sup> The 1977 Protocols Additional to the Geneva Conventions of 1949 (often referred to simply as Protocol I and Protocol II) spell out specific sets of rules to govern international and internal conflicts. The United States has not ratified the Protocols; it has declared its intention to be bound by them to the extent that they reflect customary law. See Michael J. Matheson, “The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions,” *American University Journal of International Law and Policy*, Vol. 2 (1987), pp. 419–431.

<sup>3</sup> For example, the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare (“Gas Protocol”) prohibits the use of some types of chemical weapons.

<sup>4</sup> Theodor Meron, “The Continuing Role of Custom in the Formation of International Humanitarian Law,” *American Journal of International Law*, Vol. 90 (1996). The growing

Customary international law is composed of behavioral norms that become widely recognized among states as binding.<sup>5</sup> Together, these various sources of law aim to reduce damage and the suffering of combatants and noncombatants during conflict.

U.S. political and military decisionmakers generally respect the dictates of the law of armed conflict not only out of a traditional commitment to notions of the rule of law but also for policy reasons. Aside from moral and humanitarian considerations, the United States, as a prosperous democracy, has a strong interest in upholding international norms, which tend to be stabilizing forces and increase the predictability of state actions.

Beyond general efforts to uphold the law of armed conflict, U.S. planners place a premium on the perceived legitimacy of military operations, which often turns in part on their perceived legality. Planners strive to maintain support among three sets of audiences—the domestic public, the international community, and some parties local to the areas of operations—and adherence to international law can be integral to this support.<sup>6</sup>

International legal norms may shift or remain unsettled, and accusations alleging breaches of legal duties by the United States or its forces are not uncommon, but many of the basic principles embodied in the law of armed conflict have, over time, been internalized in the highest levels of strategic planning down to the lowest levels of tactical decisionmaking by individuals, where commitment to legal norms can help motivate and sustain the morale of U.S.

---

importance of customary law in the law of armed conflict regime is highlighted by a decision of the International Criminal Tribunal for the Former Yugoslavia in *Prosecutor v. Tadic*, where the court emphasized, among other things, that certain customary rules of warfare apply in internal as well as international armed conflicts. (Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, October 2, 1995, available at <http://www.un.org/icty/tadic/appeal/decision-e/510002.htm>.)

<sup>5</sup> Definitions of customary law vary. One widely cited definition states: “Customary international law results from a general and consistent practice of states followed by them from a sense of legal obligation.” *Restatement (Third) of Foreign Relations Law*, §102(2).

<sup>6</sup> This report focuses on the law governing *how* military operations are conducted, not *whether* a state or other actor is justified in acting militarily, although legal justification for intervening may also be important in solidifying public and international support.

servicemen.<sup>7</sup> Prior to and during operations, legal advisors and military Judge Advocate General (JAG) officers play a variety of roles in ensuring compliance with international law—roles that have gained prominence in the past decade.<sup>8</sup>

### THE INTERNATIONAL LEGAL REGIME: FUNDAMENTAL CONCEPTS

The body of international law regulating armed conflict is intricate, and many of its most salient provisions remain contested among states, international organizations, and scholars. Nevertheless, much of the legal regime is reducible to several key concepts around which there is near-consensus: military necessity, humanity, distinction (or discrimination), and proportionality. These legal principles long pre-date the advent of air power,<sup>9</sup> and the international community has struggled throughout much of the past century to reconcile air power capabilities with well-established, basic tenets.<sup>10</sup>

International regulation of armed conflict begins with the principle of *military necessity*: “the principle which justifies measures of regulated force not forbidden by international law which are indispens-

<sup>7</sup> John G. Humphries, “Operations Law and the Rules of Engagement,” *Airpower Journal*, Vol. 6, No. 3 (Fall 1992), pp. 38–39, describes how international legal norms have, particularly since the Vietnam War, been internalized by military planners and operators.

<sup>8</sup> Particular attention is increasingly given to review of target lists and promulgation of rules of engagement by international law experts and military judge advocates.

<sup>9</sup> Many of the modern legal regime’s basic tenets can be found, for example, in the Christian “Just War doctrine” developed in the Middle Ages and in Hugo Grotius’ 17th century treatise, *De Jure Belli ac Pacis Libri Tres*, in which he argued that war should be governed by a strict set of laws.

<sup>10</sup> An early attempt to regulate aerial bombardment took place at the Hague Peace Conference of 1899, several years before the inaugural Wright Brothers flight, where European delegates adopted a declaration prohibiting for five years the dropping of bombs from balloons. After witnessing air power’s potential during World War I, a commission of jurists from major military powers reconvened in the Hague and drafted a code regulating air warfare, known as the 1923 Draft Hague Rules of Air Warfare. No states ever ratified the code as a treaty, however. The impact of air power technology and strategy on international legal development is discussed in Matthew C. Waxman, “Siegecraft and Surrender: The Law and Strategy of Cities as Targets,” *Virginia Journal of International Law*, Vol. 39 (1999), pp. 381–399. An excellent collection of essays tracing the history of the law of armed conflict may be found in Michael Howard, George J. Andreopoulos, and Mark R. Shulman, *The Laws of War: Constraints on Warfare in the Western World* (New Haven: Yale University Press, 1994); see especially the chapter by Tami Davis Biddle on air power.

able for securing the prompt submission of the enemy, with the least possible expenditures of economic and human resources.”<sup>11</sup> In pursuing military victory, however, parties are also governed by the principle of *humanity*, which forbids the infliction of injury or destruction not necessary to the achievement of legitimate military purposes.<sup>12</sup>

To a degree, the principles of military necessity and humanity complement each other, both reflecting the notion of economy of force. Yet they are also in tension—a tension that the law of armed conflict seeks to mediate—between allowing sufficient military flexibility to subdue an enemy while also restricting that flexibility to limit the destructive impact of conflict. Many of the specific rules contained in the law of armed conflict attempt to balance, on the one hand, the latitude necessary for military forces to carry out their functions, with, on the other, a desire to minimize human suffering.<sup>13</sup>

The principles of military necessity and humanity together also underlie the rule of *proportionality*, which demands that parties refrain from attacks, even against legitimate military targets, likely to cause civilian suffering and damage disproportionate to the expected military gain.<sup>14</sup> A classic example of this rule holds that a force advancing through a town that encounters a single enemy

<sup>11</sup> Department of the Air Force, Air Force Pamphlet 110-31, *International Law—The Conduct of Armed Conflict and Air Operations* (1976) (“AFP 110-31”), p. 1-5.

<sup>12</sup> The precise formulation of these key principles varies. *The Commander's Handbook on the Law of Naval Operations* (Department of the Navy, 1995), para 8.1, for example, enumerates the following three fundamental principles of the law of armed conflict that regulate targeting:

- The right of belligerents to adopt means of injuring the enemy is not unlimited.
- It is prohibited to launch attacks against the civilian population as such.
- Distinctions must be made between combatants and noncombatants, to the effect that noncombatants be spared as much as possible.

<sup>13</sup> For an excellent discussion of the relationship between these principles, see Myres S. McDougal and Florentino P. Feliciano, *Law and Minimum World Order: The Legal Regulation of International Coercion* (New Haven: Yale University Press, 1961), pp. 520–530.

<sup>14</sup> Article 51(5)(b) of Protocol I prohibits “an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.” The United States has accepted this provision as reflecting international law. Matheson (1987), p. 426. Although this principle is almost universally regarded internationally as law, its precise meaning remains elusive, in part because of the inherent difficulties in measuring, and then weighing, expected military gain and civilian harm.

sniper firing from atop a hospital is prohibited from demolishing the entire building, because the civilian harm would far outweigh the military advantage attained.

Embedded in these principles and rules is the idea of *distinction* (or *discrimination*) between military and civilian persons or property. Planners and commanders are generally obligated to distinguish between military and civilian targets, restricting their attacks to the former only. In broad terms, international law prohibits attacks on civilian populations, as such, as well as acts or threats of violence having the primary purpose of spreading terror among the civilian population.<sup>15</sup> Furthermore, operations are to be directed exclusively at military objectives, defined as “those objects which by their own nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.”<sup>16</sup>

To a large degree, this military-civilian distinction has been blurred in the modern age of warfare. Indeed, the difficulties in retaining sharp delineations of “military” targets were highlighted in the *General Orders, No. 100: Instruction for the Government of Armies of the United States in the Field* (1863), issued to the Union Army at the outset of the Civil War. Dubbed the “Lieber Code” after its author, Francis Lieber, the document set forth restrictions governing the actions of military forces during conflict. The code recognized that “as civilization has advanced during the last centuries, so has likewise steadily advanced, especially in war on land, the distinction between the private individual belonging to a hostile country and the hostile country itself, with its men in arms.”<sup>17</sup> At the same time, the document acknowledged that “[i]t is a law and requisite of civilized existence that men live in political, continuous societies, forming organized units, called states or nations, whose constituents bear, enjoy, and suffer, advance and retrograde together, in peace and in war.”<sup>18</sup>

<sup>15</sup> AFP 110-31, p. 5-7.

<sup>16</sup> Protocol I, Article 52; AFP 110-31, p. 5-8.

<sup>17</sup> Lieber Code, Article 22.

<sup>18</sup> Lieber Code, Article 20.

Some objects like troops or weapon depots are clearly military objects and therefore subject to legitimate attack. Other objects like a schoolhouse or ordinary residences are clearly civilian and therefore off-limits to direct attack (although, as discussed below, their protected status can in some instances be lifted because of enemy actions that convert them to military targets). In between is a large, variously shaded gray area of objects that serve both military and civilian functions, and are therefore subject to differing legal interpretations of status.

Because the legal status of targets turns on the contribution they make to the enemy's war effort (and on the expected military advantage gained from their neutralization), a legal assessment presumes a theory linking destruction of the targets to strategic goals. The United States generally supports interpretations of "military objectives" that include economic targets and infrastructure because their destruction is sometimes thought to undermine an adversary's ability to sustain operations as well as its will to do so.<sup>19</sup>

Aside from the general international legal principles prohibiting direct attacks on civilians and civilian objects, narrow rules also proscribe attacks on specific objects granted special protection. The 1949 Geneva Conventions protect hospitals and other medical

---

<sup>19</sup> "Economic targets of the enemy that indirectly but effectively support and sustain the enemy's war-fighting capability also may be attacked." Department of the Navy (1995), p. 8-1. See also Michael N. Schmitt, "The Principle of Discrimination in 21st Century Warfare," *Yale Human Rights and Development Law Journal*, Vol. 2 (1999), p. 149. Prevailing logic in USAF planning emphasizes that "[s]trategic attack objectives often include producing effects to demoralize the enemy's leadership, military forces, and population, thus affecting an adversary's capability to continue the conflict." Department of the Air Force, Air Force Doctrine Document 1, *Air Force Basic Doctrine* (September 1997), p. 51. John A. Warden III, "The Enemy As a System," *Air Power Journal*, Vol. 9, No. 1 (Spring 1995), argues that "It is pointless to deal with enemy military forces if they can be bypassed by strategy or technology." (p. 52.)

During Operation Allied Force against Yugoslavia in spring 1999, NATO military and political leadership clashed over many targets. A spokesman for Supreme Allied Commander Wesley Clark at one point declared that "Serb radio and television is an instrument of propaganda and repression . . . . It has filled the airways with hate and with lies over the years, and especially now. It is therefore a legitimate target in this campaign." Such attacks were initially opposed by many NATO civilian leaders, although the restrictions on hitting them were soon lifted. Craig R. Whitney, "Generals Vow to Hit Serb TV but NATO Civilians Say No," *New York Times*, April 9, 1999, p. A8. This issue is discussed in more detail in Chapter Five.

assets. Religious and cultural buildings and monuments are also promised special protected status under international law.<sup>20</sup>

### INTERNATIONAL LEGAL CONSTRAINTS ON AIR OPERATIONS

Despite the melding of military and civilian resources in the modern nation-state, the contemporary law of armed conflict retains strict obligations to discriminate between military and civilian targets. During its early history, air power technology helped erode combatant-noncombatant and military-civilian distinctions. In the past several decades, however, advances in precision-guidance and airborne intelligence and reconnaissance technologies have to a limited extent helped redraw those lines.

World War I displayed the potential for air power to hit enemy targets far beyond the lines of battle, while at the same time the experience of the major powers gave rise to interwar air power theories that centered on destroying the enemy's military-industrial resources. In World War II, the inability of Allied planes to bomb precisely while maintaining tolerable levels of aircraft losses, combined with the influence of strategic theories that emphasized disrupting the enemy's workforce or eroding civilian morale, led to bombardment of entire urban areas. The great conflagrations and human suffering across Germany and Japan resulting from this practice caused some prominent authorities to question whether the principle of military-civilian distinction still existed at all.<sup>21</sup>

Since then, technological advances, particularly those generating improved accuracy of air-delivered ordnance, have, at least in the case of the United States, its allies, and other developed states, made air power an instrument of potentially high precision. The enhanced

---

<sup>20</sup> This status was codified in Article 27 of Hague Regulations Respecting the Laws and Customs of War on Land, 18 October 1907, and Article 5 of Hague Convention No. IX Concerning Bombardment by Naval Forces in Time of War, 18 October 1907. The Statute of the International Criminal Tribunal for the Former Yugoslavia, Article 3, enumerates as a "law or custom of war" the prohibition of the "seizure of, destruction or wilful damage done to institutions dedicated to religion, charity and education, the arts and sciences, historic monuments and works of art and science." (<http://www.un.org/icty/basic/statut/statute.htm>.)

<sup>21</sup> See, for example, Lester Nurick, "The Distinction Between Combatant and Noncombatant in the Law of War," *American Journal of International Law*, Vol. 39 (1945).

precision of air power, particularly since the Vietnam War, has strengthened international obligations to discriminate among targets. The legal regime's demands for civilian-military target distinction have further hardened as greater precision spurred the replacement of strategic theories emphasizing massive area bombardment with those emphasizing more economical uses of firepower.

Air Force Pamphlet 110-31, *International Law—The Conduct of Armed Conflict and Air Operations*, instructs that, applying international legal limits to air attacks, planners must take the following precautions:

- (a) Do everything feasible to verify that the objectives attacked are neither civilians nor civilian objects . . .
- (b) Take all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians, and damage to civilian objects; and
- (c) Refrain from deciding to launch any attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.<sup>22</sup>

Note that these precautions embody the principles outlined above: discrimination (section a), humanity (section b), and proportionality (section c).<sup>23</sup>

Authorities disagree as to whether planners and operators legally must always select the weapon, from among those capable of destroying a target, that poses the *least* risk of collateral damage and civilian injury when operating in highly populated areas. The principles of humanity and distinction give rise to the consensus view

<sup>22</sup> AFP 110-31, p. 5-9. These requirements restate almost verbatim the provisions in Protocol I, Article 57.

<sup>23</sup> In attacking even legitimate military targets, commanders may also be obligated to issue warnings to civilians within their vicinity. This long-standing requirement is codified in Hague Regulations, although with an important caveat for cases of assault, when advance warning would spoil tactical surprise. Thus, “[g]eneral warnings are more frequently given than specific warnings, lest the attacking force or the success of its mission be jeopardized.” AFP 110-31, p. 5-11.

prohibiting weapons that cause superfluous injury (e.g., poisoned projectiles, dum-dum bullets) or are completely incapable of discrimination (e.g. World War II German V-1 and V-2 rockets).<sup>24</sup> Some scholars and organizations argue that, beyond these minimal threshold prohibitions, an attacker must choose the means and methods that minimize risk of incidental civilian damage to the greatest extent feasible.<sup>25</sup> Under this interpretation, for example, U.S. forces might always be legally obligated to use precision-guided munitions against urban targets.<sup>26</sup> As noted in the next chapter, U.S. forces virtually always have done so anyway since the Vietnam War for reasons related to politics or military effectiveness. But the U.S. military generally opposes this tighter legal interpretation, because it restricts operational and tactical flexibility and because the military's precision-guided arsenal is limited and financially costly.<sup>27</sup>

It could be argued that the consistent U.S. practice over the past several decades of using precision-guided weapons against urban targets is creating customary law demanding that nations possessing precision munitions always use them in highly populated environments.<sup>28</sup> Recall from the beginning of this chapter that a customary international legal norm is created when states act in conformity with it and the international community accepts it as obligatory. It is also, however, an international legal principle that by persistently objecting to a norm while it is becoming law, a state may exempt

<sup>24</sup> AFP 110-31, p. 6-2; Department of the Navy, *Commander's Handbook*, (1995) p. 9-1.

<sup>25</sup> See, for example, Michael Bothe et al., *New Rules for Victims of Armed Conflicts* (The Hague: Martinus Nijhoff Publishers, 1982), p. 364; Middle East Watch, *Needless Deaths in the Gulf War: Civilian Casualties During the Air Campaign and Violations of the Laws of War* (New York, 1991), pp. 126-127.

<sup>26</sup> Schmitt (1999) states that the discrimination principle contains "the requirement to select the method or means of attack likely to cause the least collateral damage or incidental injury, all other things being equal, relative to the military advantage obtained." Based on this, he concludes that "if guided munitions would lessen the expected loss and damage without increasing the risk to the aircrew or decreasing the expected damage to the target, and the guided munitions are readily available, then the attacking force should employ them." (p. 152.)

<sup>27</sup> Both sides of this debate, illustrated in the Gulf War context, are outlined in Ariane L. DeSaussure, (Maj, USAF), "The Role of the Law of Armed Conflict During the Persian Gulf War: An Overview," *Air Force Law Review*, Vol. 37 (1994), pp. 60-61.

<sup>28</sup> Customary international law is defined in footnote 5 and accompanying text. Some of the difficulties in determining whether state practice has gained customary law status are discussed in Theodor Meron, "Geneva Conventions as Customary Law," in Theodor Meron, *War Crimes Law Comes of Age* (Oxford University Press, 1998), pp. 154-174.

itself from it.<sup>29</sup> The usual problems of determining whether a practice has “matured” into customary law and whether a state has opted out of its development are complicated in this case because the party perhaps seeking to opt out (the United States) of the norm (i.e., using precision-guided weapons against urban targets) is the one to whom the norm would most often apply, and also because U.S. actions do not corroborate—indeed, they seem to contradict—its objection to the norm. It is also not immediately clear, given that U.S. and many allied forces generally follow the proposed norm as a matter of policy anyway, whether regarding it as a legal requirement will promote civilian protection in the long term. The positions taken by an international actor with regard to this issue and that of the previous paragraph depend not only on whether a state has precision capabilities or expects to be the target of air attacks, but also on policy judgments (for instance, will inhibiting forces’ flexibility regarding how best to use their available technology reduce incentives to develop weapons more capable of protecting civilians?) as well as value choices (for instance, how should the benefits of technology be distributed?). As later chapters of this report make clear, public expectations at home and abroad will push U.S. decisionmakers not to deviate from the consistent U.S. policy regarding precision weapons and urban environments, regardless of how one resolves this interesting legal question.<sup>30</sup>

Another increasingly contentious issue involves choices between weapon systems, particularly stand-off weapons, that may trade off increased force protection for a heightened risk of collateral damage. Again, the U.S. military generally favors a liberal interpretation of weapon-selection duties, one that permits an extremely high level of force protection so long as an appropriate level of accuracy is still

---

<sup>29</sup> For an excellent discussion of the customary law and the “persistent objector rule,” see Jonathan I. Charney, “The Persistent Objector Rule and the Development of Customary International Law,” *British Yearbook of International Law*, Vol. 56 (1985). A practice generally does not become customary law just because it is widely or consistently followed. There is also a requirement, termed *opinio juris sive necessitatis* (or simply *opinio juris*), that states regard the practice as obligatory.

<sup>30</sup> Somewhat perversely, an argument that the consistent U.S. practice of using only precision-guided munitions (PGMs) against urban targets generates a legal norm despite U.S. protestations to the contrary might in theory create incentives for the United States to deviate from its practice in order to manifest dissent.

<sup>31</sup> According to *The Commander’s Handbook on the Law of Naval Operations*, for example, “[m]issiles and projectiles with over-the-horizon or beyond-visual-range capabilities are lawful, provided they are equipped with sensors, or are employed in conjunction with external sources of targeting data, that are sufficient to ensure effective target discrimination.”

assured.<sup>31</sup> Somewhat ironically, a major “success” of NATO’s Operation Allied Force against Yugoslavia (1999)—the avoidance of even a single friendly combat casualty—may have fed perceptions, especially among human rights organizations and some segments of the international media, that U.S. and NATO forces were externalizing the entire human cost of conflict to the civilian population on the ground by bombing from high altitudes (typically from 15,000 feet).<sup>32</sup>

### RECIPROCAL OBLIGATIONS AND THE DEFENDER’S DUTIES

So far, this outline of legal constraints has been one-sided; it has focused on regulating the *attacker’s* actions.<sup>33</sup> Because the attacker generally has an array of options as to when, where, how, and how much it employs destructive force, the law of armed conflict places on it the above-mentioned responsibilities. A regime that seeks to regulate the extent to which noncombatants suffer the harms of conflict will obviously place a great deal of emphasis on the attacker’s actions and obligations. But the international legal regime also places corresponding duties on the *defender*.

The reasons are illustrated in a September 1864 exchange following Confederate General Hood’s accusation that General Sherman’s Union army had deliberately shelled the civilian population of Atlanta. To Hood’s allegations Sherman responded: “You defended

---

<sup>32</sup> Mary Robinson, the UN high commissioner for human rights, remarked during the air campaign, “What is alarming about this war is that there are no military casualties on those who are carrying out the bombing campaign.” Quoted in Jan Battles, “Robinson Hits at Clinical Bombing,” *Sunday Times* (London), May 16, 1999, p. 18. These perceptions offered support to those who suspiciously viewed NATO actions as hegemonic. For interesting press accounts or editorials on “indiscriminate” NATO bombings from India, South Africa, and China, respectively, see “Sonia Misled President on MPs’ Support” *The Statesman* (India), May 11, 1999; Heribert Adam, “Failure of Military Humanitarianism,” *Business Day* (South Africa), June 1, 1999, p. 13; and “People’s Daily’ Observer Slams US Hegemonism” (China), BBC Summary of World Broadcasts, June 25, 1999.

<sup>33</sup> The law of armed conflict, particularly as applied to air operations, often speaks in terms of “attacker” and “defender.” Because this study analyzes constraints on U.S. air operations in urban environments, the former, generic term is assumed to apply to U.S. forces, whereas the latter describes adversaries’ obligations and actions.

Atlanta on a line so close to town that every cannon-shot and many musket-shots from our line of investment, that overshot their mark, went into the habitations of women and children.”<sup>34</sup>

Although Sherman’s defense of the Atlanta shelling was probably disingenuous, his comments illustrate that incidental harm befalling civilians is often a product of both parties’ actions, including defensive steps and failure to segregate defensive forces from local civilian sites.<sup>35</sup> First, the defending force often has substantial control (whereas the attacker has none) over where military forces and equipment are placed in relation to the civilian population. Second, the defending power often has better information than the attacker about where civilian persons and property actually are, and is therefore better positioned to avoid knowingly leaving them in harm’s way. And, third, the defender’s actions—including its proper efforts to protect itself by resisting attack—may contribute to the danger facing noncombatants. The defender’s choice of strategy, too, will significantly determine the extent to which civilians are vulnerable to possible attack. The Viet Cong’s strategy of converting hamlets into fortified strongholds predictably increased combat in heavily populated areas during the Vietnam War.<sup>36</sup>

Efforts during the past several decades to codify the law of armed conflict have emphasized the reciprocal duties of attackers and defenders. Article 58 of Protocol I demands that parties endeavor to

---

<sup>34</sup> Letter from Sherman to Hood, September 10, 1864, reprinted in William T. Sherman, *Memoirs* (Bloomington: Indiana University Press, 1957), p. 120. To this Hood retorted:

I feel no other emotion other than pain in reading that portion of your letter which attempts to justify your shelling Atlanta without notice . . . . [T]here are a hundred thousand witnesses that you fired into the habitations of women and children for weeks, firing far above and miles beyond my line of defense. I have too good an opinion, founded both upon observation and experience, of the skill of your artillerists, to credit the insinuation that they for several weeks unintentionally fired too high for my modest field-works, and slaughtered women and children by accident and want of skill.

Letter from Hood to Sherman, September 12, 1864, reprinted in Sherman (1957), pp. 121–122.

<sup>35</sup> The importance of reciprocal duties is stressed throughout W. Hays Parks, “Air War and the Law of War,” *Air Force Law Review*, Vol. 32 (1990).

<sup>36</sup> Guenter Lewy, *America in Vietnam* (New York: Oxford University Press, 1978), pp. 230–231.

segregate military objectives from their civilian population and take steps to protect civilians from the dangers of military operations.<sup>37</sup> Article 51 also provides that the “presence or movements of the civilian population or individual citizens shall not be used to render certain points or areas immune from military operations, in particular in attempts to shield military objectives from attacks or to shield, favour or impede military operations.”<sup>38</sup> The recently negotiated Rome Statute of the International Criminal Court includes in its enumeration of war crimes “[u]tilizing the presence of a civilian or other protected person to render certain points, areas or military forces immune from military operations.”<sup>39</sup>

The key implication of the law’s mutuality of obligations is that the probable harm to civilians resulting from military attacks is in part a product of *both* parties’ decisions to adhere to versus breach legal duties.

Exploiting the discrimination requirement placed on attackers by deliberately commingling civilians with military targets violates the basic principles of the law of armed conflict. Note, however, that a defender’s violation of these principles—for example, its deliberate placement of civilians in the vicinity of military targets or its use of

---

<sup>37</sup> The same principle applies to specially protected sites such as medical, cultural, or religious buildings. For example, Article 19 of the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (1949) establishes: “The responsible authorities shall ensure that the said medical establishments and units are, as far as possible, situated in such a manner that attacks against military objectives cannot imperil their safety.”

<sup>38</sup> Protocol I, Article 51(7). This admonition is similarly articulated in AFP 110-31, para. 5-8, which explains:

The requirement to distinguish between combatants and civilians, and between military objectives and civilian objects, imposes obligations on all the parties to the conflict to establish and maintain the distinctions . . . . Inherent in the principle of protecting the civilian population, and required to make that protection fully effective, is a requirement that civilians not be used to render areas immune from military operations. Civilians may not be used to shield a defensive position, to hide military objectives, or to screen an attack. . . . A party to a conflict which chooses to use its civilian population for military purposes violates its obligations to protect its own civilian population. It cannot complain when inevitable, although regrettable, civilian casualties result.

<sup>39</sup> United Nations Diplomatic Conference of Plenipotentiaries on the Establishment of an International Criminal Court, Rome Statute of the International Criminal Court (July 17, 1998), Article 8(2)(b)(xxiii). The United States is not a signatory to the document.

specially protected sites to house weapons—does not relieve the attacker of all legal obligations. Among other things, an attacker would generally still be obligated to comply with proportionality principles and refrain from attacks likely to result in civilian damage excessive in relation to military gain. Nevertheless, the relative protections normally granted those civilian persons and objects is weakened. Chapter Four discusses implications of the reciprocity of legal duties and examines how adversaries, especially those that show little regard for international law and do not face political or diplomatic pressures similar to those faced by the United States, may exploit the asymmetry of constraints for strategic or tactical gain.

## **THE CHALLENGE OF URBAN ENVIRONMENTS**

The structure and organization of urban centers pose special problems for compliance with the principles of discrimination and proportionality. From a planning viewpoint, these principles contain a foreseeability element: planners must consider collateral damage and likely injury to noncombatants or civilian property and must take reasonable actions to avoid or minimize these potential effects. Not only does the urban environment, by connecting and tightly packing both military and civilian resources, increase the chances that military attacks will harm civilians, but it increases the likelihood that even relatively small destructive impacts can unleash substantial reverberating effects on the urban population.

### **Population Density and Geographical Proximity**

The density of civilian populations in urban areas increases the chances that even accurate attacks will injure noncombatants. In addition, the collocation of military and civilian assets in urban environments multiplies the chances that military attacks will cause unintended, and perhaps disproportionate, civilian damage. The close proximity of civilian and military targets in urban environments exists in the horizontal dimension (military and civilian structures situated side-by-side) as well as the vertical dimension (military and civilian assets stacked one above the other, within the same structure).

Horizontal proximity of civilian and military sites raises both the possibility that an attack will accidentally hit nearby civilian buildings or the possibility that a direct hit on a military site will damage

adjacent civilian ones. A primary objective for U.S. forces during the early phases of Operation Just Cause was the Panamanian Defense Force (PDF) general headquarters—the Comandancia—located in the middle of a poor Panama City neighborhood (El Chorrillo). During U.S. shelling of the headquarters and subsequent efforts to quell sniper fire, several fires broke out and spread through nearby civilian residences, leading the human rights organization Americas Watch to conclude that “inadequate observance of the rule of proportionality resulted in unacceptable civilian deaths and destruction,”<sup>40</sup> a conclusion disputed by other post-operation analyses. Most urban air operations were conducted with direct line-of-sight precision weapon platforms, which were more accurate than indirect-fire weapons, thereby reducing the risk and extent of damage to nearby structures and injury to civilian residents.<sup>41</sup> Even with these precautions in place, however, civilian injury and damage were extensive.<sup>42</sup> During Operation Desert Fox in December 1998, planners avoided bombing some facilities that contributed to Iraq’s chemical weapons program because of the possibility of releasing toxins within Baghdad. These targeting restrictions may not have been required from a strictly legal standpoint, but they illustrate that civilian and military sites need not be immediately adjacent to complicate decisionmaking that seeks to avoid collateral damage.

The Gulf War Al Firdos bunker incident demonstrates how proximity of military and civilian targets can operate in a vertical dimension, especially in the urban environment. On the night of February 13, 1991, U.S. F-117 strikes destroyed the bunker, a building that intelligence gatherers had identified as a command and control facility. The true nature of the facility remains disputed, but on the night it was destroyed it housed families of government officials in its upper levels; the strikes thus resulted in dozens of civilian deaths.

<sup>40</sup> Americas Watch Report, “The Laws of War and the Conduct of the Panama Invasion,” (May 1990), pp. 16–21.

<sup>41</sup> AH-64 attack helicopters and AC-130 gunships, both with direct line-of-sight weapons and night-vision capability, were used against the Comandancia. John Embry Parkerson Jr., “United States Compliance with Humanitarian Law Respecting Civilians During Operation Just Cause,” *Military Law Review*, Vol. 133 (1991), p. 54.

<sup>42</sup> Most estimates put the total number of civilian deaths resulting from the Panama invasion between 220 and 300. (Parkerson [1991], p. 55.) Americas Watch (1990) reported that the attack on the Comandancia left about 15,000 persons homeless and resulted in 50–70 civilian deaths. (p. 19.)

The legal regime recognizes the difficulty of military decisionmaking amid the fog of war, and thus obligates planners and commanders to base their decisions on the information reasonably available at the time. The fact that civilian and military targets may be stacked on top of each other in urban environments complicates the assessment of potential civilian risk in attacking certain sites, as well as the ability, even after information is gathered, to destroy only the latter. For example, vertical proximity creates potential problems for neutralizing an urban sniper without harming civilians in rooms on either side or above or below the sniper's. As elaborated later in this report, both horizontal and vertical proximity of military and civilian targets present adversaries with opportunities to exploit legal and political constraints to immunize legitimate targets from attack.

Particular difficulties emerge from the collocation of civilian and military assets in urban environments when air defenses are concentrated near key targets. Not only does the emplacement of air defense systems or even the possession of hand-held antiaircraft weapons by local forces in densely populated areas compound the problem of civilian-military asset mingling, but it can increase the chance of civilian damage resulting from air attacks on military targets, as attacking aircraft may now be forced to take evasive actions or operate at higher altitudes. As Hays Parks has explained, "The purpose of enemy defenses is not necessarily to cause aircraft losses; the defender has accomplished his mission if he makes the attacker miss his target."<sup>43</sup>

### **Shared Military-Civilian Resources**

Urban environments contain shared military-civilian resources and house dual-use facilities. The military and civilian population often use common power sources, transportation networks, and telecommunications systems. Distinguishing between military and civilian infrastructure is sometimes difficult and, especially with respect to support systems that provide basic needs such as electricity, it may be impossible to destroy or disrupt only those portions servicing the military. This last point is especially true when the military, generally the priority user during crises, can be expected to utilize any residual capacity. Attacks on shared infrastructure can therefore

<sup>43</sup> Parks (1990), p. 191.

have large reverberating effects on the civilian population, giving rise to concerns about proportionality.<sup>44</sup> Planners sometimes view the dual-use nature of infrastructure systems opportunistically, because military usage arguably legitimizes these systems as targets, even though it may in fact be the incidental effects on the civilian population that planners hope to manipulate. As a result, the United States tends to favor liberal legal interpretations of “military objective” when it comes to dual-use facilities.<sup>45</sup>

Some of the most vocal criticism of Operation Desert Storm has surrounded air attacks on the Iraqi electrical system. Air campaign planners sought to degrade Iraq’s electric-power generation and distribution capabilities during early phases of the operation to disrupt air defenses, weapon production, and command networks. Air planners recognized that these attacks would deny electricity to the Iraqi populace as well, and to some degree civilian deprivations were intended as part of the overall air strategy to compel the regime’s capitulation.<sup>46</sup> Some accounts suggest that planners sought to avoid destroying those elements of the electric system that would require long-term reconstruction, in order to achieve immediate military objectives without subjecting the population to prolonged hardship. In that sense, they emphasized discrimination in a temporal, rather than geographical dimension, by trying to minimize potential lingering civilian effects long after the conflict. Because of the interconnectedness of resource systems in a modern society, however, attacks against certain elements can have unexpected ripple effects. As one post-war analysis of these strikes explained: “Unfortunately, it is simply not possible to segregate the electricity that powers a hospital from ‘other’ electricity in the same lines that powers a biological weapons facility.”<sup>47</sup> In this case, the loss of

<sup>44</sup> Some disagreement exists with respect to how to calculate adverse civilian effects of attacks on military targets. One view holds that planners must consider the long-term, indirect effects of attacks on a civilian population, whereas the U.S. military adheres to a narrower interpretation emphasizing direct civilian injuries or deaths. During operational planning, when target lists are reviewed for compliance with international law, much greater emphasis is typically given to immediate and direct collateral effects.

<sup>45</sup> “When objects are used concurrently for civilian and military purposes, they are liable to attack if there is a military advantage to be gained in their attack.” Department of Defense, *Conduct of the Persian Gulf War*, Final Report to Congress (Washington, DC: Government Printing Office, 1992), p. 613.

<sup>46</sup> Barton Gellman, “Allied Air War Struck More Broadly in Iraq,” *Washington Post*, June 23, 1991, p. A1.

power-generating facilities disrupted irrigation, sewage, and medical systems, contributing to massive outbreaks of waterborne diseases and other public health crises (some post-war studies recorded a civilian death toll perhaps surpassing 100,000 resulting from these effects).<sup>48</sup>

The dilemmas stemming from shared civilian-military resources can be expected to increase as greater parts of the world modernize and develop networked infrastructure systems. Some military theorists welcome this trend because they view these systems as vulnerable to U.S. air power and their destruction or degradation may allow planners to bypass the enemy's fielded military forces by influencing the enemy populace and its leadership's decisionmaking.<sup>49</sup> Perhaps partly as a result of Gulf War criticism, Yugoslavia's major electric power infrastructure was a politically sensitive target in 1999 and was struck only after the NATO leadership decided to escalate strategic air attacks.<sup>50</sup>

Even if operational concepts directed at disrupting these systems pass legal scrutiny, political constraints may limit their availability. Although the United States may be able to strike power-generation and other infrastructure facilities with high accuracy and minimal destruction of nearby structures, the population on the ground and in many parts of the world—whether U.S. decisionmakers intend this effect or whether they protest to the contrary—is likely to view such attacks as indiscriminate.

## Media Coverage

The Vietnam War inaugurated the now-commonplace media coverage and scrutiny of military operations. Media coverage does not itself affect the content of legal constraints, but it does affect their

---

<sup>47</sup> Daniel T. Kuehl, "Airpower vs. Electricity: Electric Power as a Target for Strategic Air Operations," *Journal of Strategic Studies*, Vol. 18, No. 1 (March 1995), p. 254.

<sup>48</sup> For a critical account of coalition attacks on the Iraqi electric system and its after-effects, see Middle East Watch (1991), pp. 171–193. It must be noted that the long-term effects of these attacks resulted in part from international sanctions but also from resource allocation decisions by the Iraqi government.

<sup>49</sup> See, for example, Warden (1995), who argues that "[u]nless the stakes in the war are very high, most states will make desired concessions when their power-generation system is put under sufficient pressure or actually destroyed." (p. 49.)

<sup>50</sup> Michael R. Gordon, "NATO Air Attacks on Power Plants Pass a Threshold," *New York Times*, May 4, 1999, p. A1.

strength because purported breaches of the law of armed conflict will be powerfully publicized.

The February 1994 Sarajevo marketplace shelling, which prompted NATO to threaten Serb forces with air strikes, reveals the extent to which a single, well-publicized incident can mobilize intense political and diplomatic pressures.<sup>51</sup> It also demonstrates that graphic images of conflict can have an immediate impact on policymaking over which planners have little control. Perhaps it is because instant imagery of bomb victims can be powerfully emotive that collateral damage appears to affect public perceptions more strongly than human suffering from resource deprivations caused by infrastructure attacks or economic sanctions. In their critique of U.S. sanctions policy, John Mueller and Karl Mueller speculate that “[s]ome of the inattention [to loss of Iraqi lives] may . . . be due to the fact that, in contrast to deaths caused by terrorist bombs, those inflicted by sanctions are dispersed rather than concentrated, and statistical rather than dramatic.”<sup>52</sup>

Media coverage of military operations is typically most extensive and quickly broadcast from inside or around cities. This phenomenon stems in part from the pure pragmatics of media coverage in conflict zones—the international media tends to base its own operations in cities, and it is generally best-equipped to report instantaneously from these areas. If the international media is strictly controlled by the local government—take for example, the tightly monitored reporting by Peter Arnett of CNN from Baghdad during the Gulf War—reporting from outside of urban, or capital, centers may be virtually impossible. One correspondent wrote of his experience during the Gulf War:

---

<sup>51</sup> During the January 1994 NATO Summit meeting in Brussels, differences in opinion among NATO partners over the use of air strikes became evident. The marketplace shelling reportedly killed over 60 civilians and brought pressure from the United States to issue an ultimatum that the Serbs withdraw their heavy weapons from around the besieged city or face air attacks. The Serbs backed down at the eleventh hour, with the aid of a compromise arranged with Russia enforcing the withdrawal of heavy weapons. These events are detailed in Dick A. Leurdijk, *The United Nations and NATO in Former Yugoslavia* (The Hague: Netherlands Atlantic Commission, 1994), pp. 47–58.

<sup>52</sup> John Mueller and Karl Mueller, “Sanctions of Mass Destruction,” *Foreign Affairs*, May/June 1999, p. 47.

[C]ameras and reporters had been able to witness not just where the bombs were being flown out from, but to some extent where they were landing. They were censored, restricted in Baghdad far more crudely than they were in Saudi Arabia—but it was only a matter of time before something went astray and television audiences around the globe would be treated to the plain, painful fact that Allied bombs did not always drop into buildings like the Riyadh videos would have had us believe, with no human distress involved. Sometimes they missed their targets. Sometimes they hit civilian areas.<sup>53</sup>

The implications of adversary control over media reporting and the opportunities for exploitation that such control provides are discussed in Chapter Four.

As previously noted, the media's extensive presence in urban areas does not itself create new legal constraints for planners. Rather, it amplifies those already existing by publicizing, sometimes with powerful imagery, the effects of military operations. This discussion therefore marks an appropriate point of departure for the examination of political constraints on urban air operations contained in the next chapter.

## CONCLUSION

The law of armed conflict imposes obligations on attackers and defenders to take precautions to reduce the risk of collateral damage and civilian injury. The risk of such damage from air operations is magnified in the urban settings where military and civilian assets are collocated and often difficult to distinguish. As a result, legal constraints on air operations will often be most tightly felt by planners and operators in urban environments.

---

<sup>53</sup> Alex Thomson, *Smokescreen: The Media, the Censors, the Gulf* (Kent: Laburnham and Spellmount Ltd., 1992), p. 212.

---

**POLITICAL CONSTRAINTS ON URBAN OPERATIONS**

---

The legal obligations described in Chapter Two are supplemented by an additional set of constraints on planners—constraints driven by political forces. Public and coalition sensitivity to friendly casualties and collateral damage often reduces operational flexibility more severely than does adherence to the international law of armed conflict.

Some political pressures push in the same direction as the law of armed conflict, such as when the public demands that civilian injury be minimized. But some political pressures push against international legal duties, such as when the public demands that risk to U.S. forces be minimized. Efforts to reduce vulnerability of U.S. and allied forces without sacrificing military effectiveness may entail greater risks for civilians in the conflict area; efforts to reduce the risk of collateral damage may require placing U.S. and allied forces in greater danger. During NATO's recent Allied Force operations over Kosovo, for instance, the requirement that U.S. ground-attack aircraft stay above 15,000 feet to minimize risks to aircrews from shoulder-fired anti-aircraft weapons helped satisfy political pressures to avoid U.S. casualties, but it probably resulted in higher chances (and perhaps more incidents) of misidentification of civilian vehicle traffic as enemy.

Political constraints derive from the need to maintain certain minimum levels of support for military operations among three audiences: the domestic public, the international community (most notably major and regional allies), and the local population in the conflict area. The relative weight of these audiences' opinion on U.S.

decisionmaking varies considerably with context and type of operation. When vital U.S. interests are at stake, for example, decisionmakers are less likely to adapt operations to placate international dissent; when peripheral interests are at stake, the relative importance of diplomatic backlash naturally rises and decisionmakers will tailor operations accordingly. During full-scale combat operations, the demands of the local populace will typically concern U.S. decisionmakers and planners less than during peacekeeping or humanitarian operations, where perceived impartiality and maintaining consent of factional parties may be critical to success. Even when U.S. vital interests are at issue, sensitivity among policymakers and the public about casualties, collateral damage, and civilian suffering affects strategic decisions about when and whether to conduct military operations at all, as well as operational decisions including choice of forces, weapons, and rules of engagement.

From an operational planning perspective, the resulting political pressures are often seen as impediments to sheer military effectiveness. But just as policymakers must understand how tight restrictions on tactical and operational decisionmaking might reduce military potency, military planners must appreciate that satisfying political demands may be vital to sustained support for military operations. In other words, the same restrictions that an operator views problematically as “constraining” may be critical enablers of military action at the highest strategic levels.

### **AMERICAN CASUALTY SENSITIVITY**

Today, U.S. military operations are typically planned and conducted with high sensitivity to potential U.S. casualties. Policymakers and planners generally fear that U.S. casualties will—or at least might—erode support for sustained operations. Force protection is often of paramount importance in designing operations.

Until the Gulf War, commentators cast American casualty sensitivity as part of the “Vietnam syndrome.” Contrary to the predictions of those who saw Desert Storm as putting the Vietnam experience in the past, the relatively low American death total likely raised public expectations of “bloodless” foreign policy and fed policymakers’ and military planners’ perceptions that the public had softened in this regard. The further erosion of already fragile American public support that followed the October 1993 deaths of 18 U.S. servicemen

in Mogadishu evinced the strong pull that U.S. casualties can exert on policy. The extended deployment of U.S. ground forces to enforce the Dayton peace accords in the former Yugoslavia only confirms this tendency: Unlike those of other NATO partners, U.S. troops patrol in convoys and have avoided actions likely to provoke hostile responses from local factions.<sup>1</sup>

Although a number of empirical studies have shown that the effects of U.S. casualties on public support depend heavily on a number of contextual factors and other variables—for example, support is likely to erode with casualties when vital interests are not at stake or when the public views victory as unlikely<sup>2</sup>—this sensitivity affects policy and planning decisions both prior to and during operations, when concern for potentially adverse public reactions weighs heavily. The potential for casualties and resulting dissipation of support was one factor that motivated President Bush to demand a quick end to the Gulf War.<sup>3</sup>

Adversaries often view casualty sensitivity as a key component of the United States' "center of gravity": its political will to sustain operations. Ho Chi Minh famously warned the United States: "You can kill ten of my men for every one I kill of yours. But even at those odds, you will lose and I will win."<sup>4</sup> Somali warlord Mohamed Farah Aideed reportedly echoed to Robert Oakley, the U.S. special envoy to Somalia during the U.S. intervention there, "We have studied Vietnam and Lebanon and know how to get rid of Americans, by

---

<sup>1</sup> Edith M. Lederer, "Tuzla Off Limits to Off-Duty Troops," *Detroit News*, February 20, 1997, p. A12.

<sup>2</sup> For such conclusions and evidence drawn from other studies, see Eric V. Larson, *Casualties and Consensus* (Santa Monica: RAND, 1996). Larson's study showed that in a number of past cases support for a military operation declined as a function of the log of the casualties, although the sensitivity to casualties depended on the perceived benefits of and prospects for success. See also John Mueller, *Policy and Opinion in the Gulf War* (Chicago: University of Chicago Press, 1994), who reports empirical findings from previous conflicts to support the theory that U.S. casualties, especially under certain circumstances, erode public support for continued operations. (pp. 76–77.)

<sup>3</sup> Mueller (1994), p. 121.

<sup>4</sup> Stanley Karnow, *Vietnam: A History* (New York: Penguin edition, 1997), p. 184. Saddam Hussein shared this belief prior to the Gulf War, reportedly having told the American ambassador to Baghdad shortly before the invasion of Kuwait, "Yours is a society which cannot accept 10,000 dead in one battle." Lawrence Freedman and Efraim Karsh, *The Gulf Conflict 1990–1991* (Princeton, NJ: Princeton University Press, 1993), p. 276.

killing them so that public opinion will put an end to things.”<sup>5</sup> Accordingly, adversaries are likely to adopt counter-intervention strategies that impose high risks of U.S. casualties.

In part because of casualty sensitivity, U.S. foreign policy also exhibits a tendency to choose military instruments that do not require putting U.S. personnel in harm’s way any more than necessary. A long-standing tenet of the American “way of war” has been a reliance on materiel over manpower, high-technology over low-technology mass.<sup>6</sup> The heavy reliance on the vast U.S. technological superiority, featuring in particular modern stealth and precision-guidance systems, has contributed to what Eliot Cohen has dubbed “the mystique of U.S. air power.”<sup>7</sup> Not only do such high-technology instruments provide sufficient target discrimination to satisfy the public’s demand for minimizing civilian suffering, but they also allow U.S. forces to bring massive firepower to bear without placing significant numbers of—or, in the case of cruise missiles, zero—U.S. personnel in danger.<sup>8</sup> The use of cruise missiles to attack suspected terrorist targets in Afghanistan in August 1998, and their threatened use against Iraqi forces in November 1998, reflected this tendency, even at the expense of predictably degraded military effectiveness.<sup>9</sup>

## SENSITIVITY TO COLLATERAL DAMAGE AND CIVILIAN SUFFERING

U.S. military operations are planned with concern for minimizing collateral damage, although, as with American casualties, policy-makers’ and public sensitivity to collateral damage depends on a number of contextual factors and other variables. During the

<sup>5</sup> Quoted in Barry M. Blechman and Tamara Cofman Wittes, “Defining Moment: The Threat and Use of Force in American Foreign Policy,” *Political Science Quarterly*, Vol. 114, No. 1 (1999), p. 5.

<sup>6</sup> Russell F. Weigley, *The American Way of War* (Bloomington: Indiana University Press, 1977).

<sup>7</sup> Eliot A. Cohen, “The Mystique of U.S. Air Power,” *Foreign Affairs*, Vol. 73 (January–February 1994).

<sup>8</sup> Although the apparent downing of an F-16 by Bosnian Serb forces in 1995 and an F-117 by Serbian forces in 1999 attest that U.S. forces remain at least somewhat vulnerable even to older generations of anti-aircraft defenses.

<sup>9</sup> Paul Mann, “Strategists Question U.S. Steadfastness,” *Aviation Week & Space Technology*, August 31, 1998, p. 32.

Vietnam conflict, perceptions that U.S. and South Vietnamese forces were conducting indiscriminate operations—perceptions that appeared validated by coverage of My Lai and other actual or alleged atrocities—combined with the indecisiveness of the war to fuel public disaffection.<sup>10</sup> On the other hand, there was little adverse public reaction to the hundreds of Somali civilian deaths resulting from firefights with U.S. or UN forces, nor has there been vocal outcry since the Gulf War about Iraqi civilian deaths resulting from air strikes or economic sanctions, even though a majority of the U.S. public, at the height of the Gulf War, believed that the people of Iraq were innocent of any blame for Saddam Hussein's policies.<sup>11</sup> Nevertheless, significant segments of the U.S. population support minimizing risk to enemy civilians and general support will probably become less stable, and hence potentially more vulnerable to unpredictable dips, if military planners and operators do not take steps to minimize such risk. Moreover, as with U.S. casualties, collateral damage is likely to undermine public support when combined with the perception that U.S. victory is unlikely.<sup>12</sup> The bottom line is that policymakers are extremely wary of authorizing actions posing high risks of significant collateral damage, especially when U.S. vital interests are not immediately threatened.

Even when the U.S. public appears willing to tolerate collateral enemy civilian injury, other members of the international community may not, and the risk of either public or international backlash

---

<sup>10</sup> As Guenter Lewy explains, "The impact of the antiwar movement was enhanced by the widely publicized charges of American atrocities and lawlessness. The inability of Washington officials to demonstrate that the Vietnam War was not in fact an indiscriminate bloodbath and did not actually kill more civilians than combatants was a significant factor in the erosion of support for the war . . ." Lewy (1978), p. 434.

<sup>11</sup> A *Los Angeles Times* poll (February 15–17, 1991), showed that 60 percent of respondents thought that the people of Iraq were innocent of any blame, whereas only 32 percent thought that the people of Iraq must share blame for Saddam Hussein's policies. Mueller (1994), p. 316. Likewise, accidental NATO attacks on a Serbian passenger train and Kosovar refugee convoys in the early weeks of Operation Allied Force did not undermine U.S. public support for air strikes. A *USA Today* poll (April 16, 1999) taken shortly after these events showed 61 percent support (approximately the same support level as the previous week), although such incidents began to take a toll as the conflict continued.

<sup>12</sup> A survey by the Pew Research Center in May 1999 suggested that public support for NATO air attacks on Yugoslavia decreased because of unintended civilian casualties combined with public concern that the attacks were ineffective. Richard Morin, "Poll Shows Most Americans Want Negotiated Settlement," *Washington Post*, May 18, 1999, p. A18.

is typically enough to severely constrain U.S. air operations. The added political constraints attending coalition operations are described in more detail below. But even in unilateral operations, the sensitivities of allies and other international actors can influence military planning. For example, although the U.S. public has not significantly objected to collateral damage resulting from the numerous air attacks against Iraqi military targets in the years since the Gulf War, Arab states have, and the Iraqi populace's suffering as a result of both U.S. military actions and other elements of U.S. Iraq policy (such as sanctions) have damaged international support for the U.S. stance. Civilian casualties in January 1993 resulting from an errant cruise missile aimed at a weapon-producing facility that hit a Baghdad hotel fueled such dissent, and may thereby have restricted further U.S. military actions.<sup>13</sup> The Arab League issued a statement following the incident that it "regrets the policy of military escalation against Iraq," and further complained that United States military action "extended to the bombing of Iraqi civilian targets inside Baghdad and led to the killing and wounding of civilians among the brotherly Iraqi people."<sup>14</sup> Even Britain and France, which generally supported U.S. efforts and took part in the attacks on air defenses in the no-fly zones, seemed to distance themselves from the cruise missile strike.<sup>15</sup> Similar protests, especially from among the Arab states, have followed every instance of Iraqi collateral damage.<sup>16</sup>

Sometimes operations must be planned with attention to minimizing enemy *combatant* casualties, in addition to minimizing injury to civilians. At the end of the Gulf War, near the Kuwaiti town of Al Jahra, allied aircraft destroyed hundreds of civilian and military vehi-

---

<sup>13</sup> Robin Wright, "Diplomacy: U.S. Officials Concede That Discord Within 29-Nation Alliance Served to Limit Actions Against Iraq," *Los Angeles Times*, January 19, 1993, p. A10. The resulting opposition among coalition partners to U.S. military action gave rise to speculation that Saddam had deliberately incited U.S. reprisals. See Mark Fineman, "Hussein's Moves Seen as Steps in Calculated Plan," *Los Angeles Times*, January 17, 1993, p. A1.

<sup>14</sup> Michael R. Gordon, "U.S. Leads Further Attacks on Iraqi Antiaircraft Sites; Admits Its Missile Hit Hotel," *New York Times*, January 19, 1993, p. A1.

<sup>15</sup> Paul Lewis, "U.S.-Led Raids on Iraq Strain Unity of Gulf War Coalition," *New York Times*, January 20, 1993, p. A1.

<sup>16</sup> It should be noted, however, that whereas most Arab nations have publicly condemned U.S. military strikes against Iraq, some of their governments have intimated that they would welcome robust strikes that incapacitated Saddam Hussein's regime. See John Lancaster, "Egypt Urges Diplomacy, Not Force, in U.S.-Iraq Dispute," *Washington Post*, November 14, 1997, p. A35.

cles that Iraqi forces were using to flee north. Reports of the carnage on the “Highway of Death” led General Colin Powell, the chairman of the Joint Chiefs of Staff, to worry that the brilliant American military performance would be tarnished at home and abroad by images of excessive violence against retreating forces.<sup>17</sup> So long as enemy forces in such situations have not signaled their surrender, they remain legally targetable—this case illustrates how political and diplomatic pressures can overlay a supplemental set of tighter constraints than international law. During Operation Deliberate Force planning, General Bernard Janvier, Forces Commander of the United Nations Peace Forces, expressed concern to NATO planners regarding Bosnian Serb army casualties; targeting choices were therefore amended to reduce the likelihood that military personnel would be hit.<sup>18</sup> Concern over combatant casualties in this last case partly stemmed from the special considerations that drive peace enforcement operations, especially those where perceived impartiality is valued (this issue is elaborated below).

## RESTRICTIVE RULES OF ENGAGEMENT AND TARGETING

Political constraints emanating from concern over collateral damage have for the past several decades severely limited planning options during conflicts. During much of the Vietnam conflict, and in every military operation since, political and diplomatic pressures—especially those related to civilian damage and injury—have translated into restrictions on which targets could be struck from the air, as well as when and how.

This is not to say that U.S. forces always operate in perfect accordance with the law of armed conflict. Interpretations of legal obligations and factual circumstances vary. Moreover, some political pressures push against rather than with the humanitarian goals of the legal regime; although concern for collateral damage may caution

<sup>17</sup> It turned out that the “Highway of Death” air strikes destroyed many vehicles but killed few Iraqis (who abandoned their vehicles and fled into the desert). The images were more powerful than (and bore scant relation to) reality. Powell’s concerns are discussed in Rick Atkinson, *Crusade: The Untold Story of the Persian Gulf War* (Boston: Houghton Mifflin Company, 1993), p. 453.

<sup>18</sup> Ronald M. Reed, “Chariots of Fire: Rules of Engagement in Operation DELIBERATE FORCE,” Robert C. Owen (ed.), *Deliberate Force: A Case Study in Effective Air Campaigning* (Maxwell Air Force Base, AL.: Air University Press) (forthcoming).

restraint in conducting air operations, concern for force protection, military effectiveness, and even financial expense may lead planners to undervalue civilian costs to operations, arguably beyond legal bounds.<sup>19</sup> Undeniably, though, the political factors laid out earlier restrict operational flexibility in more ways than would international law alone.

Targeting restrictions and rules of engagement are the most visible and perhaps important mechanisms through which legal and political constraints affect operations.<sup>20</sup> The rules of engagement dated December 30, 1971, governing strike aircraft operations, for example, specified that “[a]ir attacks directed against known or suspected VC/NVA [Viet Cong/North Vietnamese Army] targets in urban areas must preclude unnecessary danger to civilians and destruction of civilian property, and by their nature require greater restrictions than the rules of engagement for less populated areas.”<sup>21</sup> These restrictive policies stood in contrast to U.S. bombing practices during the Korean War, where by the end of the conflict U.S. air

<sup>19</sup> For a critical account of U.S. targeting policy and practice in the Gulf War, see Middle East Watch, *Needless Deaths in the Gulf War: Civilian Casualties During the Air Campaign and Violations of the Laws of War* (New York, 1991). For charges of indiscriminate NATO bombing practices in Operation Allied Force, see Jan Battles, “Robinson Hits at Clinical Bombing,” *Sunday Times* (London), May 16, 1999, p. 18; Simon Jenkins, “NATO’s Moral Morass,” *The Times* (London), April 28, 1999; Mark Lawson, “Flattening a Few Broadcasters,” *Guardian* (London), April 24, 1999, p. 18; Fintan O’Toole, “NATO’s Actions, Not Just Its Cause, Must Be Moral,” *Irish Times*, April 24, 1999, p. 11. Such critiques often ignore that alternative ground options might entail much greater risk to local civilian persons and property.

<sup>20</sup> JCS Pub 1-02 (1994), the Department of Defense *Dictionary of Military and Associated Terms*, defines rules of engagement as directives that delineate the circumstances and limitations under which military forces will initiate and/or continue combat engagement with enemy forces.

<sup>21</sup> As a result, the rules of engagement (ROE) went on to direct:

- (1) Approval by both the senior tactical commander and the ARVN corps commander is required to conduct air attacks in urban areas including support of RVNAF. This authority will not be delegated except for the built-up areas of Saigon, Cholon, and Gia Dinh City . . . .
- (2) Air attacks in urban areas will be controlled by a FAC.
- (3) Prior to subjecting urban areas to an air attack, even when fire is being received from the area, the inhabitants must be warned by leaflets, loudspeakers, or other appropriate means prior to the attack and given sufficient time to evacuate the area.

Reprinted in W. Michael Reisman and Chris T. Antoniou, *The Laws of War* (New York: Vintage Books, 1994), p. 121.

forces were attempting to compel a favorable settlement through massive bombardment of industrial centers.<sup>22</sup>

The difference between the U.S. targeting policies in the two conflicts is certainly attributable, in part, to the nature of the conflicts and justification for American involvement: the North Korean invasion in 1950 provided clear grounds for U.S./UN intervention, whereas the Vietnamese communists' propaganda machine harnessed pervasive media coverage to exploit doubtful world opinion concerning the legitimacy of U.S. efforts.<sup>23</sup> Yet the Vietnam War also marked a turning point in the conduct of U.S. military operations, and since then the means and methods by which the U.S. armed forces pursue military objectives have come under intense scrutiny at home and abroad.

With strategic options likely to directly cause massive civilian casualties off the table (for the most part), restrictive rules of engagement at the tactical level are increasingly the locus of contentious policy and legal debate. Planners often attempt to minimize collateral damage and civilian injury not only by circumscribing certain targets and conditions for engaging enemy forces but also by limiting the timing of attacks. For example, attacks on certain targets might be restricted to nighttime, when fewer persons would be expected to be in the target's vicinity.

Figure 1 illustrates some of the interacting constraints planners face. The figure represents a hypothetical "snapshot" view of a particular crisis. Although the graph is drawn without scale, the slope of the line is deliberately drawn to reflect the relatively intense political sensitivity of U.S. casualties and an implicit tradeoff discounting risks to enemy civilians.<sup>24</sup> High sensitivity to U.S. casualties may

<sup>22</sup> To be sure, bombing policy during the Vietnam War also had, as an element of its objectives, an intention to pressure the North Vietnamese regime by destroying the standard of living for urban populations. Urban targets during the latter conflict, however, were much more strictly circumscribed.

<sup>23</sup> Stephen T. Hosmer, *Constraints on U.S. Strategy in Third World Conflicts* (New York: Crane Russak & Co., 1987), pp. 60-61.

<sup>24</sup> *USA Today* (February 15, 1991) reported immediately following the Al Firdos bunker incident that 69 percent of the public would accept deaths of civilians near military targets in order to save U.S. lives (about three-quarters of those polled supported continued bombing in Iraqi civilian areas). Again, the willingness of policymakers and planners to trade one risk for another will vary with contextual factors.

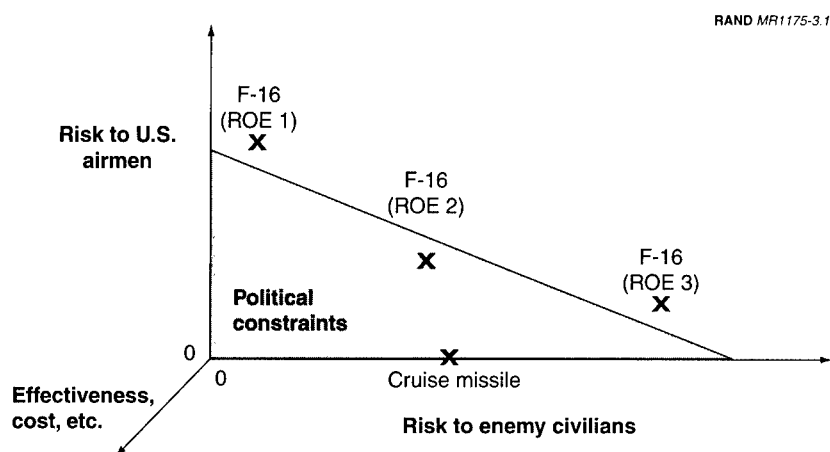


Figure 1—Force Protection Versus Collateral Damage Avoidance

result in weapon system and ROE choices that arguably fall short of international legal obligations with respect to collateral damage.

Note that this figure omits an important independent variable discussed above: The United States may be willing to accept great risks of both U.S. and civilian casualties if the stakes are high enough. As a related matter, higher prospects for success are likely to increase political tolerance of civilian and casualty risks.

Considering again Figure 1, planners must select weapon systems and ROE that lie within the parameters imposed by political demands. The three choices of ROE for the piloted platform—here, an F-16—are drawn as points along a curve to illustrate the general, though not universal, principle that efforts to reduce risk to friendly aircraft will often increase the risk of collateral damage; likewise, efforts to reduce risk of collateral damage will often place aircraft in greater danger.<sup>25</sup> Cruise missiles allow planners and operators to

<sup>25</sup>During the planning and conduct of Operation Deliberate Force, for example, Special Instructions (SPINs) were issued to aircrews directing that (1) those attacking a bridge must make a dry pass over the target and attack on an axis perpendicular to it, releasing only one bomb per pass; (2) those carrying out suppression of enemy air defense (SEAD) strikes were not authorized without special approval to conduct preemptive or reactive strikes against surface-to-air missile sites except under certain restrictive conditions. The first of these directives was subsequently rescinded because of concerns that it placed NATO aircrews at undue risk. Reed (forthcoming).

externalize most or all of the human costs of attacks by placing no U.S. personnel at risk.<sup>26</sup>

A key planning challenge has been to select from among the politically (and legally) acceptable options while still achieving satisfactory levels of military effectiveness (and within financial and resource limitations).<sup>27</sup> Political concerns about friendly and civilian casualties impose ceilings of acceptable risk along the two featured axes. As higher levels of military effectiveness are demanded, the aperture of practicable options closes.<sup>28</sup>

During the Gulf War, planners imposed strict rules of engagement on coalition air forces, particularly when engaging urban targets. "To the degree possible and consistent with allowable risk to aircraft and aircrews, aircraft and munitions were selected so that attacks on targets within populated areas would provide the greatest possible accuracy and the least risk to civilian objects and the civilian population."<sup>29</sup> To this end, aircrews attacking targets in populated areas were directed not to drop munitions if they lacked positive target identification.<sup>30</sup> Comparable emphasis on minimizing collateral damage had generated similar restrictions on aircrews during the April 1986 bombing of Libyan terrorist-related targets; the rules of engagement for U.S. pilots required redundant target identification checks, and several aircraft therefore could not release their bombs.<sup>31</sup> Operation Deliberate Force rules of engagement for U.S. forces over Bosnia stated that "target planning and weapons delivery will include considerations to minimize collateral damage." Ninety-

---

<sup>26</sup>W. Michael Reisman, "The Lessons of Qana," *Yale Journal of International Law*, Vol. 22 (1997), pp. 381-399, worries that such cost-externalization can skew decisionmaking toward the use of stand-off weapons when the law of armed conflict would arguably demand the use of more precise weapons (though ones that might require the attacker to accept some human risk of its own).

<sup>27</sup>Captain J. Ashley Roach (JAGC, U.S. Navy), "Rules of Engagement," *Naval War College Review*, Vol. 36, No. 1 (January-February 1983), pp. 46-55.

<sup>28</sup>However, effectiveness and casualty concerns are not entirely independent. For example, the U.S. political leadership may be willing to tolerate higher-risk levels of U.S. or enemy civilian casualties but only so long as they would ensure higher levels of effectiveness. And, as explained above, low levels of military effectiveness may erode public tolerance for casualties.

<sup>29</sup>Department of Defense, *Conduct of the Persian Gulf War*, Final Report to Congress (Washington, DC: Government Printing Office, 1992), p. 612.

<sup>30</sup>*Ibid.*

<sup>31</sup>W. Hays Parks, "Air War and the Law of War," *Air Force Law Review*, Vol. 32 (1990), p. 155.

eight percent of all munitions dropped by U.S. aircraft were precision-guided munitions (PGMs).<sup>32</sup>

Rules of engagement and targeting restrictions are sometimes subject to major revisions during the course of crises or conflicts. They may be modified to *expand* targeting options and operational flexibility. The Nixon administration's frustration with unproductive air attacks on North Vietnam led it to remove many of the Johnson administration's limitations, particularly those that circumscribed urban areas. A similar loosening of restrictions took place during Operation Allied Force, when NATO governments allowed military planners greater leeway to attack strategic targets after initial waves of attacks failed to move Milosevic.<sup>33</sup>

In many instances, however, rules of engagement constrict during a campaign or operation. Incidents or claims of excessive collateral damage can generate pressure for even tighter constraints as operations continue. After the North Vietnamese had accused the United States of flagrantly attacking civilian areas, allegedly causing massive suffering, during December 1966 air strikes against railway targets near Hanoi, Washington responded by prohibiting attacks on all targets within 10 nautical miles of Hanoi without specific presidential approval.<sup>34</sup> Similarly, the Al Firdos bunker incident resulted in a tightening of political control over target selection; thereafter, all Baghdad targets had to be cleared beforehand with the Chairman of the Joint Chiefs.<sup>35</sup>

This last example of collateral damage risk aversion is particularly significant because, contrary to the fears of some political and military leaders, the U.S. public's opinion of the air war was actually unshaken by the incident.<sup>36</sup> The fear that public support will erode in the face of either casualties or civilian injury, a potential that is

---

<sup>32</sup>Reed (forthcoming).

<sup>33</sup>Tim Butcher and Patrick Bishop, "Nato Admits Air Campaign Failed," *London Daily Telegraph*, July 22, 1999, p. 1.

<sup>34</sup>Stephen T. Hosmer, *Constraints on U.S. Strategy in Third World Conflicts* (New York: Crane Russak & Co., 1987), p. 61; *Pentagon Papers* (Gravel Edition), Vol. IV (Boston: Beacon Press), p. 135.

<sup>35</sup>Michael Gordon and Bernard Trainor, *The Generals' War* (Boston: Little, Brown, 1994), pp. 326–327.

<sup>36</sup>A *USA Today* poll the following day (February 15, 1991) reported that, when asked if the shelter bombing changed their support of the war, only 14 percent responded

difficult to measure or anticipate accurately, is sometimes enough to drive political decisionmaking. For military planners trying to translate political constraints into limits on operational decisionmaking, the problem is not just the degree of political restrictions but the unpredictability of constraints. One mistake or errant missile can dramatically affect perceived support for an operation; from a planner's perspective, at least international law does not change overnight. In May 1999, for example, NATO warplanes refrained from attacking targets in Belgrade for several days after accidentally striking the Chinese embassy.<sup>37</sup>

An interesting phenomenon in this regard has been the recent, partial shift from political micromanagement of targeting decisions to micromanagement by the high military command levels themselves. The military's own self-restraint is aptly demonstrated by the tight control that then-Lieutenant General Michael Ryan, who commanded NATO's air forces, exerted over targeting during the 1995 Deliberate Force operations over Bosnia—operations that ultimately helped push the Serbs to the Dayton bargaining table. The political sensitivity surrounding the operation drove him to select personally every aim-point, even after potential targets had already been scrubbed to avoid significant risk of civilian casualties. According to one account, "General Ryan felt that the political sensitivity of the operation demanded strict accountability on the part of the air commander. He believed that every bomb dropped or missile launched not only had a tactical level effect, but could have a strategic effect as well."<sup>38</sup>

---

affirmatively, whereas 38 percent expressed no change in their support and 41 percent said they were more supportive of the war. Mueller (1994) also cites public opinion data showing that a majority of the public, both before and after the bunker incident, thought that the United States was making enough effort to avoid collateral damage. (pp. 317–319).

<sup>37</sup>Similarly, during the previous month, procedures were modified to require that American aircrews radio for authorization before striking military convoys, after a U.S. warplane mistakenly hit a refugee convoy. Elaine Harden and John M. Broder, "Clinton's War Aims: Win the War, Keep the U.S. Voters Content," *New York Times*, May 22, 1999, p. A1.

<sup>38</sup>Reed (forthcoming).

## COALITION OPERATIONS AND MILITARY OPERATIONS OTHER THAN WAR

As already mentioned, potential international outcry over collateral damage and civilian suffering resulting from U.S. military actions often results in the imposition of severe constraints on operations. This phenomenon is more pronounced in coalition operations, where allied partners can leverage U.S. proclivity toward securing their support to dictate restrictions on the use of force to suit their particular interests.

A related set of issues—and an additional set of constraints—arises in the context of military operations other than war (MOOTW). These operations are typically conducted under the auspices of international organizations or ad hoc coalitions, and the demands of peacekeeping, securing relief aid, and other tasks often require severe limitations on the use of force.

### Coalitions and Diplomatic Constraints

The United States often conducts military operations as part of a multinational coalition. Coalition-building adds legitimacy at home and abroad to military operations, and coalition partners sometimes contribute valuable military assets (including ground troops) or provide basing or overflight privileges. One price of coalition support, however, may be an added layer of constraints on uses of military force.

Each coalition member brings to an operation its own set of state interests and domestic political concerns. Even when their overall strategic objectives converge, member states have different threat perceptions, vulnerabilities, doctrines, and capabilities. As a result, any state committing forces to a coalition operation will demand that it retain some control over that operation. This control takes a variety of forms, but typically involves direct participation in military planning and decisionmaking and/or insistence on narrow operation mandates or restrictive rules of engagement. Any of these forms pose difficulties for air planners because burdensome decisionmaking procedures or tight guidelines negate some of air power's most salient attributes, including its speed and flexibility.<sup>39</sup>

<sup>39</sup> These issues are analyzed in more detail in Daniel Byman, Matthew Waxman and Eric Larson, *Air Power as a Coercive Instrument* (Santa Monica: RAND, 1999), Chapter Five; and Matthew C. Waxman, "Coalitions and Limits on Coercive Diplomacy," *Strategic Review*, Vol. 25, No. 1 (Winter 1997).

Some coalition partners may be even more sensitive than the United States to civilian injury resulting from military operations. Especially if the coalition as a whole is dependent on the support of a member with extreme sensitivities to collateral damage or perceived aggression, the result may be a lowest-common-denominator effect on rules of engagement and target selection: Planners must design operations to fall within the political and legal constraints of the most sensitive member.<sup>40</sup> During the early phases of NATO's Operation Allied Force against Yugoslavia, major targets were scrutinized by representatives of many capitals. For U.S. decisionmaking with regard to politically sensitive targets, General Wesley Clark, the Supreme Allied Commander, required authorization from the Joint Staff in the Pentagon, which in turn passed decisions on major targets up to the defense secretary and ultimately to the president.<sup>41</sup> Similar processes repeated themselves in other NATO member governments.<sup>42</sup>

Somewhat ironically, the United States often recruits allies and coalition partners for political purposes (among them, to promote an image of burden-sharing), but these partners may contribute little militarily because they lack the necessary precision capabilities to satisfy political constraints emanating from collateral damage sensitivity. If the U.S. military progresses in the technological areas described later in Chapter Five faster than its allies, this issue will grow.<sup>43</sup>

<sup>40</sup> For an illustration of how differing political and diplomatic sensitivities shaped restrictions on U.S. air forces based in Saudi Arabia after the Gulf War, see Douglas Jehl, "Saudis Admit Restricting U.S. Warplanes in Iraq," *New York Times*, March 22, 1999, p. A6.

<sup>41</sup> Steven Lee Myers, "All in Favor of This Target, Say Yes, Si, Oui, Ja," *New York Times*, April 25, 1999, sec. 4, p. 4.

<sup>42</sup> Even in NATO, which ostensibly acts on a consensus basis, the degree of member states' influence on collective decisionmaking will, in a practical sense, vary considerably. Operation Allied Force shows vividly how members' particular sensitivities can limit military flexibility. Italy and Greece, in particular, insisted on various targeting restrictions; the Serbian presidential palace was off-limits to bombers, in part because some allied policymakers worried about destroying the Rembrandt painting housed inside.

<sup>43</sup> By one estimate, only 10 percent of the roughly 5000 combat aircraft European militaries could theoretically use for air strikes have precision bombing capabilities. "Armies and Arms," *Economist*, April 24, 1999 (NATO Survey, pp. 11-12). Operation Allied Force highlighted European defense deficiencies and Europe's need to promote development of advanced systems and to devote greater budgetary resources to research and development rather than personnel. The impetus produced by the Kosovo experience toward such European efforts may help close the U.S.-European capability gap. See Vince Crawley, "U.S. Urges Arms Buildup for Allies," *Defense Week*, April 26, 1999.

The problems associated with coalition-driven constraints are exacerbated when planning for the urban environment. The features of urban environments—population density, civilian-military asset mingling, and shared civilian-military resources—that pose potential difficulties for legal adherence also complicate coalition decisionmaking. Even after NATO's North Atlantic Council approved new guidelines after several weeks of bombing Serbian targets—guidelines that gave General Clark substantial autonomy—consultation with the NATO political leadership was still required before strikes could be ordered on three types of targets: those in downtown Belgrade, those considered industrial, and those that risked large numbers of civilian lives.<sup>44</sup>

### MOOTW and Additional Constraints

Political constraints on urban air operations will often be tightest in MOOTW, both because they are typically conducted through a coalition (and sometimes under the auspices of the UN or other international body) and because the strategic demands of these operations generally require tight restrictions on the use of force. In humanitarian or peace operations, more so than in warfighting, even the smallest tactical move may have grave strategic effects. Because all UN uses of force come under close scrutiny, and are frequently conducted simultaneously with diplomatic negotiations, the precise manner in which military force is used becomes even more important. In the Bosnian conflict, UN Protection Force (UNPROFOR) rules of engagement required minimum necessary uses of force and ceasing fire when an enemy disengaged.<sup>45</sup> NATO air power was restrained by, among other things, the infamously burdensome “dual-key” command chain that required authorization from both NATO and UN leadership to launch close air support strikes.

As alluded to earlier, some recent military operations have been planned with sensitivity to risks of enemy *combatant* deaths. This is particularly true when planners seek to maintain an image of impartiality. In November 1994, Serb forces detained over 200 UN personnel as hostages after NATO bombings of Serb air bases and surface-

<sup>44</sup> Dana Priest and William Drozdiak, “NATO Struggles to Make Progress from the Air,” *Washington Post*, April 18, 1999, p. A1.

<sup>45</sup> Bruce Berkowitz, “Rules of Engagement for UN Peacekeeping Forces in Bosnia,” *Orbis*, Vol. 38, No. 4 (Fall 1994), pp. 635–646.

to-air missile systems. Bosnian Serb political leader Radovan Karadzic warned: "If a NATO attack happens, it will mean that further relations between yourselves and our side will be rendered impossible because we would have to treat you as our enemies. All United Nations Protection Force personnel as well as NATO personnel would be treated as our enemies."<sup>46</sup> Policymakers are especially likely to place severe restrictions on potentially escalatory military actions when they fear such a breakdown in relations with local parties.

The constraints arising from coalition maintenance and the demands of MOOTW combine with additional issues unique to humanitarian operations. Relief efforts by nongovernmental organizations (NGOs) face major obstacles when conducted in conflict-ridden areas because they may have to rely on the voluntary consent of warring parties to deliver aid. Concurrent military operations risk compromising the already fragile image of impartiality NGOs may need. Moreover, an adversary may retaliate to escalatory moves by disrupting NGO activities or even threatening their vulnerable personnel.

## CONCLUSION

Political sensitivity surrounding casualties and collateral damage often result in the imposition of severe restrictions on U.S. and allied military operations. A formidable task facing planners is to design operations within narrow parameters of tolerable risk to U.S. and allied servicemen and risk to civilian populations on the ground. This assignment is further complicated when planning for urban environments, where key targets may be situated but where the risks of collateral damage are magnified.

These pressures on planners are generated by the political process. From a military planner's perspective, they might appear as constraints, perhaps problematically restricting otherwise militarily effective actions. From a policymaker's perspective, they reflect societal priorities and goals that may be in tension, including public demands about protecting U.S. servicemen, humanitarian proclivities, and other policy or value choices. Restrictions on how force is

---

<sup>46</sup> Roger Cohen, "Fighting Rages as NATO Debates How to Protect Bosnian Enclave," *New York Times*, November 25, 1994, p. A1.

employed in the combat zone may therefore be necessary to make the very use of force politically feasible. For military planners and political decisionmakers at all levels, a key challenge is to understand these tradeoffs, appropriately balance conflicting pressures, and design and promulgate restrictions that, although they may limit pure military effectiveness, achieve strategic effectiveness.

---

Chapter Four

---

**THE DYNAMICS OF ASYMMETRICAL CONSTRAINTS  
AND ADVERSARY EXPLOITATION**

---

People on the outside just have no idea of what this war is all about or how it is fought. It's a rough and brutal war. The Viet Cong has never heard of the Marquis of Queensbury or Geneva Conventions, and we can't afford to lose just because we have heard of them.<sup>1</sup>

— American official in Saigon

Adversaries will typically be less constrained than the United States and its allies by international legal norms. The United States generally benefits from status quo stability and international order, whereas its adversaries are often interested in overturning that order; “[s]ince law is generally a conservative force, it is more likely to be observed by those more content with their lot.”<sup>2</sup> Apart from possible differences in commitment to international norms and preservation of the international legal regime in general, some adversaries are likely to view the United States, with its vastly superior military technology, as a manipulator of the law of armed conflict for its own benefit.

Strategic setting is critical to this analysis: Almost any “small-scale contingency” for the United States is likely to be a major war for an

---

<sup>1</sup> Quoted in Lawrence C. Petrowski, “Law and the Conduct of the Vietnam War,” in *The Vietnam War and International Law* (Richard A. Falk, ed.), Vol. 2 (Princeton: Princeton University Press, 1969), p. 487.

<sup>2</sup> Louis Henkin, *How Nations Behave: Law and Foreign Policy* (New York: Praeger, 1968), p. 49.

adversary. Conflict with the United States may implicate an adversary state's or regime's most vital interests and may strain its willingness to remain bound by international legal rules that at a given time may favor U.S. military dominance, much like the United States might be inclined to cast off legal duties if its own most vital interests were immediately threatened.

Just as the United States designs strategies around an adversary's perceived "centers of gravity," those adversaries can be expected to do likewise, and target what they see as the United States' center of gravity: its "political will." Political will, especially when perceived U.S. stakes are low or allied support is shaky, is often seen by adversaries as vulnerable to U.S. casualties and collateral damage. The greater commitment U.S. decisionmakers display to reducing risks to civilians, the more U.S. political will appears vulnerable to adversary tactics that put civilians in danger.<sup>3</sup>

Opportunities for exploiting constraints on U.S. operations expand in the urban environment. Knowing that U.S. planners and operators are obliged to verify their target objectives, adversaries can disperse dual-use sites, camouflage military assets, and otherwise hinder U.S. information-gathering. Knowing that U.S. planners and operators will avoid incidental civilian losses, adversaries can commingle military and civilian assets and persons. And knowing that U.S. planners and operators will avoid attacks likely to cause excessive civilian damage, adversaries can manipulate the media following attacks to portray exaggerated destruction.

In adopting these techniques, adversaries hope that the potential for U.S. casualties or political backlash resulting from anticipated collateral damage will deter U.S. intervention. In the event that the United States intervenes, these techniques aim to confront U.S. planners with a dilemma—refrain from attacking (or attack under extremely tight operational restrictions) certain targets, therefore risking degraded military effectiveness, or attack the targets effectively and risk collateral damage or perhaps higher levels of U.S. casualties.

---

<sup>3</sup> Daniel Byman and Matthew Waxman, "Defeating US Coercion," *Survival*, Vol. 41, No. 2 (Summer 1999).

## PROPAGANDA AND THE ASYMMETRY OF CONSTRAINTS

An adversary's ability to exploit constraints on U.S. operations depends on a number of factors including the adversary's own bases of support, its strategy, and its propaganda capabilities. Autocratic, dictatorial regimes typically maintain tight control over the media. While manipulating the content of information flowing to its own population, these regimes can also influence the timing and, indirectly, the substance of information disseminated abroad by selectively permitting journalistic inspection, although this is not to deny that U.S. and allied governments may themselves try to "sanitize" coverage of operations. The North Vietnamese were both notoriously obstructive and invitingly supportive of Western television, depending on the situation. Sudan, for years having virtually blacked itself out of the international media, welcomed TV crews when the August 1998 cruise missile strike destroyed a pharmaceutical facility in Khartoum. Yugoslav President Slobodan Milosevic displayed a pattern of cracking down on independent media each time crises flared with the international community.<sup>4</sup> During NATO's Operation Allied Force, Milosevic shut down independent newspapers and radio stations inside Serbia, used state-run television to stoke nationalist reactions, electronically jammed some U.S. and NATO broadcasts intended for the Serbian populace, and prohibited the Western press from much of Kosovo (while granting it permission to film bombed sites, especially in major cities like Belgrade and Novi Sad).

Propaganda efforts of this kind have historically affected U.S. policy-making, especially when the United States lacked the ability to counter charges of indiscriminate targeting. During the Rolling Thunder campaign, the North Vietnamese government used U.S. air strikes as propaganda, often with great success in undercutting U.S. coercive pressure. North Vietnamese authorities repeatedly asserted that U.S. air attacks were directed at Red River Valley dikes, with allegedly devastating effects on the local civilian population. These efforts played on U.S. decisionmakers' fears that such allegations would destroy public and foreign support; concern over this issue caused the Johnson administration to emphasize that the dikes were

---

<sup>4</sup> Chris Bird, "Kosovo Crisis: Yugoslav Media Fear Crackdown Amid War Fever," *Guardian*, October 8, 1998, p. 15; Jane Perlez, "Serbia Shuts 2 More Papers, Saying They Created Panic," *New York Times*, October 15, 1998, p. A6.

off-limits to campaign planners. These targeting restrictions then gave the North Vietnamese freedom to place anti-aircraft and other military assets at the sites, further countering the air campaign.<sup>5</sup> The U.S. reaction to Saddam Hussein's attempt to capitalize on the Al Firdos bunker tragedy, described earlier, fit a similar pattern.

To be sure, adversary efforts to profit by civilian casualties often fail and may even prove counterproductive if the American and international public views the adversary leadership as at fault. But even when adversary efforts to exploit collateral damage do not result in a tightening of self-imposed U.S. constraints, they publicly put U.S. policymakers on the defensive and may harden the resolve of adversaries who expect U.S. will to erode.

### THE DYNAMICS OF CONSTRAINTS AND ADVERSARY INCENTIVES TO BREACH

An adversary that is capable of sustaining and manipulating civilian casualties and collateral damage will often have tremendous incentives to do so. Figure 2, a simple 2 x 2 payoff matrix, illustrates the strategic interaction of each side's moves and the incentives driving each side's choices. This representation oversimplifies each side's decision to a binary one, while in practice there are many intermediate levels of target discrimination and target segregation that the United States and its adversaries can choose. The game-theoretical device emphasizes that choices about legal compliance result at least in part from anticipated choices by the other side.

The pairs of numbers in each quadrant are representative payoffs to the United States and an enemy, based on the combined choices of each side.<sup>6</sup> For instance, in the bottom-left quadrant, where the

<sup>5</sup> W. Hays Parks, "Rolling Thunder and the Law of War," *Air University Review*, Vol. 33, No. 2 (January–February 1982), pp. 11–13. The North Vietnamese similarly accused the United States of flagrantly attacking civilian areas, causing massive suffering, during December 1966 air strikes against railway targets near Hanoi. Washington responded by prohibiting attacks on all targets within 10 nautical miles of Hanoi without specific presidential approval. Stephen T. Hosmer, *Constraints on U.S. Strategy in Third World Conflicts* (New York: Crane Russak & Co., 1987), p. 61; *Pentagon Papers* (Gravel Edition), Vol. IV (Boston: Beacon Press), p. 135.

<sup>6</sup> U.S. payoffs are based primarily on (1) adverse domestic/diplomatic effects of collateral damage and (2) the ability to hit military targets whose destruction contributes directly to U.S. operational goals. Enemy payoffs are based primarily on (1) international sympathy gained by victimization minus political costs associated

RAND MR1175-4.1

		Enemy	
		Segregate targets	Mingle targets
United States	Restrict targeting	7,5	3,7
	Relax targeting	3,3	2,6

Figure 2—Enemy Exploitation of Asymmetrical Constraints

United States adopts relatively relaxed rules of engagement and targeting practices while the enemy segregates its civilian and military assets, the payoff scores are 3 and 3, respectively. When the United States chooses relaxed targeting and the enemy segregates its civilian and military assets, the U.S. payoff is fairly low because even the low level of likely collateral damage will carry a heavy political and diplomatic price, and the adversary's payoff is also fairly low because its military targets are most vulnerable to destruction. Contrast this with the upper-left quadrant, where both parties are better off (this situation—with the United States adopting restrictive targeting and the enemy segregating targets—most closely approximates that demanded by the law of armed conflict). The United States can still strike most military targets it desires, with little political and diplomatic risk, although some targets will now probably be passed over because of restrictions.

The equilibrium result—the expected result if both sides behave rationally in this example—is the upper-right: the United States adopts restrictive rules of engagement and targeting practices while the enemy deliberately mingles its assets. Restrictive rules of engage-

with the risk of appearing to intentionally place civilians in danger and (2) the ability to shield valuable military targets (aside from those military targets whose destruction contributes directly to U.S. operational goals). The illustrative payoffs assume no resource costs to either mingling or segregating.

ment is the United States' "dominant strategy"; regardless of what choice the enemy makes, the United States is always better off choosing restrictive rules of engagement. Likewise, mingling is the enemy's dominant strategy; the enemy is better off doing so regardless of U.S. targeting decisions.<sup>7</sup> The results of this illustration are conjectural, but they are borne out empirically by cases discussed in the following section.

#### URBAN ENVIRONMENTS AND ADVERSARY EXPLOITATION OF ASYMMETRICAL CONSTRAINTS

The characteristics of urban environments discussed in Chapter Two—population density, the proximity of civilian and military targets, shared civilian-military assets, and media focus—provide adversaries with ample opportunity to exploit asymmetrical constraints, and adversary efforts to exploit these asymmetries are likely to be more successful in concentrated urban environments. The potential for large civilian death or injury tolls, the ease of situating military assets near, or camouflaging them among, civilian ones, and the intense media scrutiny surrounding incidents of collateral damage facilitate adversary shielding tactics. Evidence from recent conflicts demonstrates the tendency of adversaries to employ these tactics, frequently with some success. In Somalia, for instance, U.S. and UN forces frequently encountered hostile militiamen firing from behind women and children. U.S. forces trying to aim at armed threats from the air found that militiamen took advantage of crowded streets to open fire and then disperse or blend into crowds of civilians.<sup>8</sup>

Using civilian assets or persons to shield military targets is especially easy in urban environments, where civilian objects and persons provide many possible "shields" for military targets and dramatically

---

<sup>7</sup> This result holds true in this example whether one assumes that decisions are made based on either absolute gain or relative gain. Of course, some of the elements of the payoffs already have a relativity component to them.

<sup>8</sup> Mark Bowden, *Black Hawk Down* (New York: Atlantic Monthly Press, 1999), describes numerous examples. In one incident (p. 46), U.S. forces encountered "[a] Somali with a gun lying prone on the street between two kneeling women. The shooter had the barrel of his weapon between the women's legs, and there were four children actually *sitting* on him. He was completely shielded in noncombatants, taking full cynical advantage of the Americans' decency."

increase the risk or possible scope of collateral damage in any attack from the air. As alluded to above, North Vietnamese forces routinely capitalized on U.S. public declarations restricting attacks in densely populated areas by storing military supplies in such places. During the Gulf War and subsequent U.S. air operations against Iraq, the Iraqi government refused to evacuate civilians known to be situated close to key targets in Baghdad and other cities.<sup>9</sup> According to the Defense Department's postwar account, "[p]ronouncements that Coalition air forces would not attack populated areas increased Iraqi movement of military objects into populated areas in Iraq and Kuwait to shield them from attack."<sup>10</sup>

The potential to exploit vertical proximity of civilians and military objectives in urban environments can be seen in Palestine Liberation Organization (PLO) practices during the 1982 Israeli incursion into Lebanon. Contravening its legal obligations to segregate the civilian population from military objectives, PLO forces in towns and cities reportedly placed artillery and anti-aircraft weapons on top of hospitals and religious buildings, in an effort to negate the technological superiority of the Israeli Defense Forces and Israeli Air Force. Upon retreating to Beirut, some PLO units allegedly positioned themselves and their military equipment in lower floors of high-rise apartment buildings and forced civilian tenants to remain in upper floors. Civilian injury tolls were substantial, although Israeli forces' strict rules of engagement often resulted in successful shielding of some legitimate PLO military targets.<sup>11</sup>

The tendency of some adversaries to shield military assets by placing their own civilians at risk and to exploit propaganda effects of collateral damage parallels in some respects a tendency to funnel limited resources to military functions and then exploit international reaction to civilian deprivations. Mueller and Mueller note that Iraqi

<sup>9</sup> Indeed, Saddam Hussein has used his authoritarian state apparatus with great success to put civilians in harm's way when faced with threats of air strikes. Barbara Crossette, "Civilians Will Be in Harm's Way If Baghdad Is Hit," *New York Times*, January 28, 1998, p. A6.

<sup>10</sup> Department of Defense, *Conduct of the Persian Gulf War*, Final Report to Congress (Washington, DC: GPO, 1992), p. 615.

<sup>11</sup> W. Hays Parks, "Air War and the Law of War," *Air Force Law Review*, Vol. 32 (1990), pp. 165-166. Martin van Creveld, *The Sword and the Olive: A Critical History of the Israeli Defense Force* (New York: Public Affairs, 1998), p. 297, relates a much more critical account of the Israeli Air Force's bombing operations.

civilians have been vulnerable to extended economic sanctions both because the Gulf War air campaign destroyed key infrastructure and “because the country’s political leadership sometimes seems more interested in maximizing the nation’s suffering for propaganda purposes than relieving it.”<sup>12</sup> Especially during conflict, adversary regimes are likely to power and feed the military first. Putting aside the legitimacy or illegitimacy of such wartime decisions, one must keep in mind that in attacking infrastructure like electrical systems, the amount of suffering a local population must bear depends on adversary actions as well as U.S. actions. During Operation Allied Force, NATO leaders sought not only to portray Yugoslavia’s electric power plants and networks as military targets but also to portray the adverse civilian effects of destroying such targets (including widespread charges that hospitals were experiencing blackouts) as the result of the Milosevic regime’s resource allocation decisions.<sup>13</sup> Even if U.S. forces are able in the future to regulate the extent of damage they inflict on infrastructure as well as the reverberating effects of infrastructure degradation, they may have little control over how the civilian population will be affected and how those effects will be perceived by the international public.

Adversaries sometimes take advantage of the special protected status granted certain types of structures, such as medical or cultural buildings. During Operation Just Cause, members of the PDF used Santo Tomás Hospital for sniper activity in attempting to repel U.S. forces.<sup>14</sup> During the Gulf War, a cache of Iraqi Silkworm surface-to-surface missiles was discovered inside a school in a densely populated Kuwait City area,<sup>15</sup> and Iraq positioned two fighter aircraft adjacent to the ancient temple of Ur during the Gulf War.<sup>16</sup> During

---

<sup>12</sup> John Mueller and Karl Mueller, “Sanctions of Mass Destruction,” *Foreign Affairs*, May/June 1999, p. 47.

<sup>13</sup> On one occasion, NATO spokesman Jamie Shea explained: “We realize the inconvenience that may be caused to the Yugoslav people, but it is up to Milosevic to decide how he wants to use his remaining energy resources: on his tanks or on his people.” Quoted in Michael R. Gordon, “NATO Air Attacks on Power Plants Pass a Threshold,” *New York Times*, May 4, 1999, p. A1.

<sup>14</sup> Americas Watch Report, “The Laws of War and the Conduct of the Panama Invasion,” (May 1990), p. 26.

<sup>15</sup> Department of Defense, *Conduct of the Persian Gulf War*, Final Report to Congress (Washington, DC: GPO, 1992), p. 613

<sup>16</sup> *Ibid.*, p. 615.

Operation Allied Force, the Yugoslav armed forces reportedly used churches, schools, and hospitals to shield troops and equipment against NATO air strikes, knowing that NATO forces operated under tight rules of engagement and that, even if Serbian practices justified attacks on these targets, NATO planners were eager to comply with international legal norms and avoid potential political fallout from destruction of these sites.<sup>17</sup>

The use of civilian structures, including those with special cultural significance, to shield military targets stems not only from a willingness by some adversaries to breach international norms but also from asymmetries in the costs each side associates with the demolition of those structures. The potential effectiveness of adversary shielding techniques largely depends on context. U.S. and Republic of Korea (ROK) forces attempting to dislodge invading North Korean forces from Seoul would likely be far less willing to demolish civilian property than if they were attempting to capture Pyongyang. Even in the former case, the United States and ROK would probably do so if required, though; the willingness to cause (and in this case sustain) civilian destruction is partly a product of military necessity. In MOOTW, such as efforts to maintain order or separate local combatants, strategic demands on planners may place much higher costs on destroying civilian property if doing so would inflame local popular resentment. In each of these cases, the potential efficacy of shielding depends on the relative costs of civilian damage that each side must internalize as well as their relative commitments to international legal obligations.

As pointed out earlier, human shield tactics may backfire, particularly if viewed locally or abroad as barbaric. But some adversaries seem willing to bear that risk in the face of otherwise overwhelming U.S. military might.

### **THE PROBLEM OF IRREGULAR FORCES**

The problems of conducting urban air operations under tight legal and political constraints are particularly acute when confronted with

---

<sup>17</sup> Elaine Harden and Steven Lee Myers, "Bombing United Serb Army As It Debilitates Economy; Yugoslav Rift Heals, NATO Admits," *New York Times*, April 30, 1999, pp. A1, A13.

irregular enemy forces.<sup>18</sup> Adherence to the principles of target discrimination becomes extremely difficult when there are few, if any, physical markings to distinguish combatants from noncombatants. Moreover, some irregular military organizations may have little or no incentive to adhere to international norms, and are therefore even more likely to capitalize on self-imposed U.S. constraints. Testifying to the extent to which adversaries will go, some PDF units were trained before Operation Just Cause to disperse, dispose of their uniforms in favor of civilian clothes, and return to Panama City to repel any U.S. intervention or invasion.

Blurred distinctions between combatants and noncombatants complicate target discrimination and facilitate “human shield” tactics like those described earlier.<sup>19</sup> In Somalia and southern Lebanon, for example, the UN and Israel, respectively, faced enemy personnel virtually indistinguishable from the heavily armed civilian populace. This fact alone complicates targeting, especially from the air. It also allows enemy forces to blend into civilian crowds, taking advantage of attacking forces’ restrictive rules of engagement or compelling those forces to risk hitting civilians.<sup>20</sup>

---

<sup>18</sup> “Irregular” forces here refer to guerrilla and militia units and other enemy forces lacking official uniforms and other insignia used to differentiate combatants from noncombatants.

<sup>19</sup> It is in part because of the difficulties of applying traditional international legal principles to guerrilla and irregular force contexts that international treaty law sometimes contains different provisions for internal, as opposed to international, armed conflicts. This issue, and the partial erosion of these distinctions in light of contemporary notions of customary international law, is discussed in a decision of the International Criminal Tribunal for the Former Yugoslavia case of *Prosecutor v. Tadic* (Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, October 2, 1995, paras. 96-127, available at <http://www.un.org/icty/tadic/appeal/decision-e/510002.htm>). Almost any U.S. operation will involve application of international armed conflict law; this report does not discuss legal issues specific to internal conflicts.

<sup>20</sup> The law of armed conflict attempts to regulate these practices, although with little success in balancing the exigencies of counterinsurgency operations with civilian protection. Article 44(3) of Protocol I, for example, states that:

In order to promote the protection of the civilian population from the effects of hostilities, combatants are obliged to distinguish themselves from the civilian population while they are engaged in an attack or in a military operation preparatory to an attack. Recognizing, however, that there are situations in armed conflicts where, owing to the nature of the hostilities an armed combatant cannot so distinguish himself, he shall retain his status as a combatant, provided that, in such situations, he carries his arms openly:

- 1) during each military engagement, and

Calculating proportionate military responses is especially vexing against irregular forces because the blurred distinction between armed foes and civilian bystanders confuses determinations of threats. During a September 1993 ambush of UN forces by Somali militiamen using women and children as shields, U.S. Cobra helicopters shot into the crowd. Italy and other coalition members protested vehemently that the U.S. response was excessive, to which Major David Stockwell, the UN military spokesman, replied: "In an ambush there are no sidelines for spectators."<sup>21</sup>

The Somalia case also illustrates that non-state military organizations often have tremendous ability to manipulate domestic and international public opinion even when they lack monopoly control over civil infrastructure. Aideed garnered support both within and outside Somalia by exploiting civilian casualties resulting from engagements with UN forces (many of these casualties attributable in part to Aideed's deliberate use of civilian crowds to shield his militia personnel), despite the fact that Somalia lacked high-technology communications systems for disseminating propaganda.<sup>22</sup>

## CONCLUSION

U.S. forces generally operate under much tighter legal and political constraints than do U.S. adversaries. Adversaries, knowing this, are likely to exploit the asymmetry. By breaching their legal obligations to segregate military and civilian assets and persons, adversaries can deter U.S. operations or compel U.S. planners to choose between military effectiveness and the risk of collateral damage. USAF planners contemplating future operations and thinking about the technological advances discussed in the next chapter must view these issues through the eyes of possible adversaries—because adversaries can be expected to do likewise.

---

2) during such time as he is visible to the adversary while he is engaged in a military deployment preceding the launching of an attack in which he is to participate.

<sup>21</sup> Leslie Crawford, "Unrepentant Peacekeepers Will Fire on Somali Human Shields," *Financial Times*, September 11, 1993, p. 4.

<sup>22</sup> Major James O. Tubbs, "Beyond Gunboat Diplomacy: Forceful Applications of Airpower in Peace Enforcement Operations," Air University Press, Maxwell Air Force Base, AL, September 1997, p. 35.

---

**TECHNOLOGY AND FUTURE CONSTRAINTS  
ON AIR OPERATIONS**

---

The various legal and political constraints laid out above stem largely, though not entirely, from sources beyond the control of the USAF. Much attention, both inside and outside the USAF, has centered on technological solutions; some technologies, which *are* partially within the USAF's control, offer promise for mitigating the *effects* of legal and political constraints on air operations.

Key to many of the issues discussed above is the problem of collateral damage. Collateral damage itself is primarily a product of three factors: (1) information about the exact location of a military target; (2) the ability to aim at and hit a desired point; and (3) the ability to regulate the quantum of destruction a hit inflicts.<sup>1</sup> Technological advances in precision targeting and information collection can both independently and in combination help address the first two factors. Advances in nonlethal weapons, information/electronic warfare, and limited effects munitions can help address the third.

Technological advances, by reducing the probability and extent of collateral damage, can be liberating for planners. However, technological improvements are no panacea, and these same advances can raise public expectations and even shift legal duties. Technological

---

<sup>1</sup> Michael N. Schmitt, "Bellum Americanum: The U.S. View of Twenty-First Century War and Its Possible Implications for the Law of Armed Conflict," *Michigan Journal of International Law*, Vol. 19 (Summer 1998), p. 1080.

development alone is therefore insufficient to eliminate trade-offs between military effectiveness and political or legal demands.

### PRECISION TECHNOLOGY

The most obvious way to reduce collateral damage and civilian injury resulting from air attacks is to improve the accuracy of air-delivered munitions. Increased precision addresses the second factor of the collateral damage problem (an ability to hit an aim point accurately) and, indirectly, the third (an ability to regulate the quantum of destruction). Ultra-precise weapons can combine high lethality with low unwanted damage.<sup>2</sup>

Improved advanced penetrator weapons—those capable not only of puncturing walls or rooftops but of sensing the appropriate depth of penetration for detonating—essentially capture the advantages of PGMs, but in the vertical dimension. Risks of collateral damage resulting from their use will always exist,<sup>3</sup> and the intelligence requirements supporting their effective use are many. But, for example, when noncombatants are below the target floor of a building, the ability to destroy facilities on upper floors would expand military options within the constraints described in Chapters Two and Three.

Increasingly sophisticated stand-off weapons offer promise for the difficult balancing, expressed in Figure 1, between force protection and collateral damage limitation. To the extent that the accuracy of cruise missiles and unmanned vehicle-delivered munitions grows, these technologies can satisfy even extreme political sensitivities regarding U.S. casualties, although the cost and relative effectiveness of these options must be considered as well. But stand-off and crewless capabilities also raise new legal and political questions so long as greater accuracy, and hence lower probability of collateral damage, can be achieved by piloted platforms with direct operator-target intervisibility.<sup>4</sup>

<sup>2</sup> *Report of the Defense Science Board Task Force on Military Operations in Built-Up Areas (MOBA)*, Office of the Under Secretary of Defense for Acquisition and Technology (Washington, DC), November 1994, p. 25.

<sup>3</sup> Including damage generated by the shockwave as it penetrates each floor.

<sup>4</sup> W. Michael Reisman, "The Lessons of Qana," *Yale Journal of International Law*, Vol. 22 (1997), p. 396-397.

On the one hand, advances in PGM technology have already proven liberating from legal and political constraints, insofar as they allow U.S. forces, under certain conditions, to strike targets in densely populated areas while minimizing collateral damage. Laser-guided bombs allowed the Seventh Air Force in June 1972, for example, to destroy the Lang Chi hydroelectric facility during Linebacker I operations over Vietnam. The target had been off-limits because an estimated 23,000 civilians would have been killed if the associated Red River Valley dikes were breached, but the precision weapons were able to destroy only the facility's turbines and generators, leaving the dams undamaged.<sup>5</sup> U.S. planners relied exclusively on PGMs for targets in densely populated areas during recent, high-intensity combat operations such as Deliberate Force (Bosnia, 1995), Desert Fox (Iraq, 1998), and Allied Force (Yugoslavia, 1999) because these weapons reduced the risks of collateral damage to fall within the tight political constraints imposed on the operations.

On the other hand, however, these same technologies that initially appear liberating for planners may result in the tightening of constraints. If, as explained in Chapter Two, an attacker has a legal responsibility to select for a given situation those weapons that achieve military effectiveness but minimize collateral damage, then arguably U.S. planners and operators would be obligated to employ the most accurate technologies as they become available.<sup>6</sup> The United States has resisted international legal interpretations that would require the use of the most precise means available to avoid such stringent demands. But its practice of relying on precision weapons over urban environments contributes to public and international expectations that the United States will continue to do so, potentially accelerating creation of a legal norm requiring it.<sup>7</sup>

The more immediate challenge for planners may result simply from raising public expectations about collateral damage, regardless of their legal import. As the American or international public comes to view U.S. weapon technology as increasingly accurate, it may

<sup>5</sup> W. Hays Parks, "Linebacker and the Law of War," *Air University Review*, Vol. 34, No. 2 (January–February 1983), pp. 11–12.

<sup>6</sup> This argument hinges not only on how one defines the general duties to discriminate and comport with proportionality but also on what factors (including resource or financial costs) should be considered in assessing military effectiveness for balancing purposes.

<sup>7</sup> This argument and some of its limits are outlined in Chapter Two.

demand lower levels of civilian injury resulting from U.S. and allied military operations. Aside from any arguable legal duties involved, public expectations create political pressures that then affect rules of engagement development and weapons selection.

In his account of the Gulf War air campaign, Richard Hallion observed:

As news and, in particular, video accounts of the air war over Iraq reached the rest of the world, a remarkable transformation in popular attitudes toward air power took place. The skepticism, doubts, and outright pessimism that had characterized previous judgments were at once swept away. Pictures of bombs threading their way down ventilator ports, elevator shafts, and bunker doors demonstrated more eloquently than any amount of written analysis how effectively and devastatingly air warfare could strike.<sup>8</sup>

The fact that the public viewed much of the air war through the eyes of a PGM or a laser designator may have served to obscure the limits of precision weapons technology.<sup>9</sup> Rising public expectations were apparently vindicated in, and therefore hardened by, subsequent operations. Defense Secretary William J. Perry described Operation Deliberate Force in the following terms:

Every target that had been designated was destroyed and there was zero collateral damage. This was a rare instance where by combination of exclusive use of precision guided munitions and very strict rule of engagement we conducted this massive campaign with no damage, no damage to civilians, *no collateral damage of any kind*.<sup>10</sup>

<sup>8</sup> Richard Hallion, *Storm over Iraq* (Washington, DC: Smithsonian Institution Press, 1992), pp. 196–197.

<sup>9</sup> The military, while eager to showcase its capabilities, sought to temper public expectations. At a Desert Storm press briefing, Brig. Gen. Richard Neal faced questioning about collateral damage reports and explained:

I don't really think there's a discrepancy between what we've been telling you and what has been reported there. We never said that there would be no collateral damage. What we did say is that our pilots scrupulously adhered to the good targeting for each mission . . . . I think as General Schwarzkopf pointed out on numerous occasions, we go to great lengths to avoid collateral damage, but that war is a dirty business and unfortunately there will be collateral damage.

(Defense Department Briefing, Riyadh, February 7, 1991).

<sup>10</sup> William J. Perry, Defense Department Briefing before the Adjutants General Association of the United States, February 7, 1996 (emphasis added).

During more recent crises, U.S. officials have taken a different approach, choosing instead to emphasize the risks inherent in any military operation.<sup>11</sup> It is unclear whether public and policymaker demands to reduce collateral damage will continue to escalate as precision capabilities improve. Perhaps graphic media coverage of conflicts will have desensitization effects on the public at some point. To the extent that these demands do continue to escalate (or that policymakers believe that they remain intense), however, political constraints will affect not only operational-level planning but strategic decisionmaking as well. The Kosovo case illustrates some of the resulting dilemmas for planners. These pressures may also increasingly restrict options premised on raising the costs of adversary resistance by destroying economically valuable targets or inducing popular backlash through deprivations of civilian resources.

A further issue arises from adversary or third-party perceptions created by improved precision. It may be harder for U.S. officials to portray incidents of collateral damage or errant bombs as accidental rather than deliberate when precision weapons are used, especially if the mistakenly bombed party overestimates the reliability of the weapons. Precision munitions occasionally go awry or targets are misidentified. It is more difficult to explain to an outraged foreign public an errant laser-guided bomb than an errant "dumb bomb"—misses with the latter are expected.<sup>12</sup>

Public expectations about collateral damage cannot, from a planning perspective, be divorced from expectations about U.S. casualties, because there is often a tradeoff between the risks of each. The astounding lack of a single NATO combat casualty during Operation Allied Force may raise the bar of tolerable U.S. losses for future operations, especially when vital U.S. interests are not implicated, just as the Gulf War probably raised the bar in 1991. Satisfying public demands relating to U.S. casualty risks may require shifting some of that risk to civilians in the conflict zone; if that shift is politically or diplomatically unacceptable, military options disappear.

<sup>11</sup> Bob Deans, "War Advisers Gauge Risks of Gulf Attack," *Atlanta Journal and Constitution*, February 14, 1998, p. 1A.

<sup>12</sup> Statements from Chinese officials suggest that this phenomenon fed beliefs within China that NATO's bombing of its Belgrade embassy in May 1999 was deliberate. Sheila Melvin, "Why Chinese Can Believe Worst About U.S. Bombing," *USA Today*, May 12, 1999, p. 15A; Elisabeth Rosenthal, "Public Anger Against U.S. Still Simmers in Beijing," *New York Times*, May 17, 1999, p. A11.

Improved precision technology, by reducing the probability and extent of collateral damage, can potentially yield greater freedom for planners trying to balance military needs with political pressures. But if legal and political constraints evolve as technology does, then some enhanced operational flexibility may be short-lived.

### INFORMATIONAL CAPABILITIES

Information about targets and their surroundings is a necessary component of precision capability; weapon precision is, at best, only as good as the information that supports it. The Al Firdos bunker (1991), Khartoum pharmaceutical facility (1998), and Chinese embassy (1999) incidents demonstrate how limited intelligence can negate the virtues of accurate munitions.<sup>13</sup> The accidental NATO bombardment of Kosovar refugee convoys in April 1999, thought when viewed from the air to be military convoys, further demonstrates the importance of real-time information-gathering during operations to efficient and humane application of precision technology. This last example illustrates the special informational demands of attacking targets of opportunity, against which air power could be especially useful in urban environments.

Intelligence, surveillance, and reconnaissance (ISR) capabilities can help address the first element of the collateral damage problem—obtaining information about exactly where the desired target is—and thus improve civilian-military target discrimination. High-resolution sensors mounted on low-flying unmanned aerial vehicles (UAVs), for example, can provide planners and operators clear images of the ground situation. In some cases, they can help aircrews more quickly and accurately distinguish between military and civilian personnel or vehicles.<sup>14</sup> During Operation Allied Force, Predator UAVs were able to loiter below cloud ceilings and identify targets on

---

<sup>13</sup> On the continuing controversy surrounding the alleged chemical weapons facility in Khartoum, Sudan, see James Risen, "To Bomb Sudan Plant, or Not: A Year Later, Debates Rankle," posted on October 27, 1999, at <http://www.nytimes.com/library/world/africa/102799us-sudan.html>.

<sup>14</sup> Martin C. Libicki, *What is Information Warfare?* (Washington, DC: National Defense University, 1995) identifies four categories of sensors that will collectively illuminate future combat environments: (1) far stand-off sensors (e.g., satellites and space-based sensors); (2) near stand-off sensors (e.g., UAVs); (3) in-place sensors (e.g., acoustic or ground-based optical); and (4) weapons sensors (e.g. infra-red). (p. 22.)

the ground; in the near future they may be capable not only of collecting information but of designating targets with lasers.<sup>15</sup>

Improved bomb damage assessment (BDA) is also critical to overall improvements in precision capability. To take full advantage of precision munitions, particularly against urban targets, operators and planners must have confidence that key targets have been destroyed. This confidence is easier to achieve if, say, an entire building complex is demolished than if only a small part of it is destroyed or disabled. Enhanced ability to “see” inflicted damage offers key support to some of the precision capabilities outlined in the previous section, which may allow for more limited applications of destructive force.

Enhanced informational capabilities also allow for more-informed proportionality calculations. Consider this account from a Vietnam War engagement:

[A]n American unit drawing a single sniper shot from a village was not justified in obliterating the entire village by using artillery and air strikes. But what if there are five snipers blocking an important bridge situated in a hamlet? How can a commander make a precise estimate of the size of the enemy unit which is firing upon his men? One sniper using an automatic weapon can sound like a platoon. These were the kinds of difficult situations faced by American officers in Vietnam who, as always in combat, had to act on incomplete information.<sup>16</sup>

Even if one accepts that a force, acting on its reasonable beliefs about the danger to itself and taking precautions to avoid inflicting disproportionate damage, is absolved of war crime or other legal charges, the use of force in such a situation might contravene more stringent political constraints. Improved information-gathering technology could provide commanders with a more complete situational picture on which to act.

Finally, improved imaging capabilities can help to visually document enemy atrocities and, where necessary, help U.S. public affairs officials refute propagandistic charges of indiscriminate attacks. Satel-

<sup>15</sup> James A. Kitfield, “Another Look at the Air War That Was,” *Air Force Magazine*, October 1999.

<sup>16</sup> Guenter Lewy, *America in Vietnam* (New York: Oxford University Press, 1978), p. 231.

lite imagery was used, for example, by U.S. officials to publicize Serb-dug mass graves in Bosnia and Kosovo. Aerial and satellite imagery technologies can combine synergistically with other capabilities (described in the following section) to combat adversary disinformation.

It is critical that the USAF think “jointly” about these informational needs. Some of these needs can be satisfied with improved technical capabilities. But nontechnical means of information collection and processing, such as human intelligence (HUMINT), will play a key role in urban environments and built-up areas. Ground forces are often best positioned to supply nontechnical information. They provide critical, up-close “pictures” of situations that may be difficult to discern from the air. They may also be the only ones capable of providing needed target identification in some situations, especially those involving irregular adversary forces.

As with the precision weapons technologies described in the previous section, the USAF should not equate better informational capabilities with greater operational and tactical flexibility for forces. Recall from Chapter Three that rules of engagement are a key mechanism by which policymakers attempt to ensure that U.S. commanders and soldiers conduct operations in accordance with overall policy. Especially in the most politically sensitive operations, such as certain MOOTW, rules of engagement may be restrictive to protect against inadvertent escalation or miscalculated uses of force. If improved information and communication technology allows planners and commanders, or even high-level policymakers, to observe tactical situations from afar, one result might be greater centralization of decisionmaking and micromanagement by higher levels of command, and less reliance on rules of engagement. The USAF will need to think about what organizational changes can best absorb new technological capabilities and use them most effectively in light of future political and legal constraints.

Improved informational capabilities can help address collateral damage concerns, but the fog of war will not be completely penetrated. Moreover, when an adversary seeks to shield military assets by deliberately collocating civilians in or near them, improved information-gathering capabilities may end up placing additional military targets off-limits if U.S. planners are aware of the civilian presence. Had U.S. planners known that the Al Firdos facility housed civilians the night it was bombed, the target would almost certainly

have been spared.<sup>17</sup> Better informational capabilities may increase the incentives for adversaries to blur distinctions between combatants and noncombatants, between military assets and civilian ones.

As with precision munitions, greater access to and processing of information can help protect civilians on the ground while enhancing military effectiveness. But better information carries with it a duty or self-imposed pressure to use it more and more.

On balance, improved informational capabilities will certainly offer immense assistance to planners and commanders trying to operate within tight political and legal constraints. However, these improvements are but one factor in the larger system of intersecting or interanimating political and military demands that limit military options.

### NONLETHAL WEAPONS, ELECTRONIC/INFORMATION WARFARE, AND LIMITED-EFFECTS MUNITIONS

Nonlethal weapons—weapons designed to neutralize the enemy without killing—may offer planners and operators an instrument that carries little risk of immediate collateral damage or direct, unintended injury.<sup>18</sup> Some of these weapons may be useful against individual combatants, others against infrastructure or military assets.

Electromagnetic pulse (EMP) weapons, for instance, would use bursts of powerful microwaves to disable electronic devices. During the Gulf War, cruise missiles were equipped with carbon-fiber warheads designed to float down and temporarily short-out exposed Iraqi electrical grids.<sup>19</sup> Similar weapons, dubbed the CBU-94 and delivered by F-117s, were used in Operation Allied Force to disable Yugoslav electrical systems.<sup>20</sup> Improved technologies of this kind, as well as those designed to disrupt the information systems needed to keep enemy infrastructure functioning, would permit the neutraliza-

---

<sup>17</sup> In many cases, of course, this will be counterbalanced by confidence that civilians, or substantial numbers of them, are *not* in a target's vicinity. This may expand targeting options.

<sup>18</sup> However, many of the nonlethal technologies discussed here may sometimes result in, or contribute indirectly to, unintended deaths.

<sup>19</sup> David A. Fulghum, "ALCMs Given Nonlethal Role," *Aviation Week & Space Technology*, Feb. 22, 1993.

<sup>20</sup> David A. Fulghum, "Electronic Bombs Darken Belgrade," *Aviation Week & Space Technology*, May 10, 1999, pp. 34–35.

tion of key enemy facilities and weapon systems without employing explosive munitions, which risk direct and immediate collateral damage. They might also be more discriminating against dual-use infrastructure than conventional bombs in a temporal sense, by leaving much of the system intact and thus easier to repair or rebuild after a conflict. Whether this is desirable from a strategic point of view will vary by context and type of operation.

Infrastructure-disabling technologies, while perhaps capable of reducing risk of human injury from the explosive impact of conventional weapons, carry their own risks of collateral effects. As the Iraqi experience shows, disabling dual-use infrastructure can have enormous reverberating health or other effects throughout the civilian population—effects that may be difficult to anticipate and plan for accordingly.

Television and radio jamming capabilities allow planners to disrupt enemy communications, including propaganda efforts, without risking direct civilian injury and while reducing the potential political fallout resulting from destruction of facilities the public might view as civilian in nature. Similar technologies can degrade enemy intelligence collection and processing, enhancing U.S. force protection. Cyber-attacks can interrupt or manipulate communication and information flows with little visible, direct injury to civilians.<sup>21</sup>

When lethal force is required, advances in limited-effects munitions can help planners and operators reduce collateral damage by inflicting carefully measured quanta of destruction. Limited-effects munitions may contain small explosive charges or rely on kinetic energy for target destruction. Either way, the intent is to destroy smaller targets (e.g., a single room rather than a building) with less harm to the surrounding structure and its inhabitants. Again, damage assessment capabilities will be necessary to fully harness the target discrimination advantages of such weapons.

Nonlethal technologies will probably have the greatest potential use

<sup>21</sup> Many of the international legal issues raised by these technologies and operational concepts are elaborated in Mark R. Shulman, "Discrimination in the Laws of Information Warfare," *Columbia Journal of Transnational Law*, Vol. 37 (1999), pp. 939–968. Legal uncertainties surrounding cyber-attacks, as they arose in the Kosovo crisis, are discussed in William M. Arkin, "The Cyber Bomb in Yugoslavia," posted October 25, 1999, at <http://www.washingtonpost.com/wp-srv/national/dotmil/arkin.htm>.

in MOOTW. Especially in humanitarian or peace operations, where an image of impartiality may be critical to success and, even relatively minor uses of deadly force can carry strategic consequences, nonlethal weapons may provide planners and operators with a more diverse array of options. Riot control technologies—for example acoustical weapons, tear gases, or other chemical incapacitants (like sleep-inducing chemicals)—are potentially useful tools for force protection or relief personnel security and may pose less risk of inadvertent escalation than conventional weapons.<sup>22</sup> So might metal embrittlement or antitraction agents be useful against enemy vehicles in crowded areas. Moreover, these technologies may help counter human shield tactics of the kind witnessed in Somalia, where UN forces threatened by mobs felt little choice at the time but to shoot into the crowd, with inevitable loss of civilian life.

Because nonlethal weapons pose less risk of civilian deaths than some conventional ones, however, planners and commanders may be more inclined to employ them—and possibly in less carefully discriminating ways.<sup>23</sup> Also, some nonlethal weapons carry their own legal or political problems arising from the nature of the technology. Chemical or biological agents that might pose far less risk to civilians or combatants than conventional munitions may be regulated by chemical or biological weapons treaties or trigger extreme political sensitivities.<sup>24</sup>

Two categories of nonlethal capabilities with tremendous potential for urban warfare but that raise potential legal and political dilemmas are incapacitating agents and lasers. Human incapacitants, like any drug, have a range of effects for a given dose; some people will be unaffected, others affected in the desired way, and still others may experience dangerous side effects. A dosage that will knock out an athletic 20-year-old militiaman may kill a baby or elderly person. In general, adversary forces will be composed of the most resistant

---

<sup>22</sup> The flip-side of this advantage may be that nonlethal weapons will underdeter violent actions by antagonists.

<sup>23</sup> Schmitt (1998), p. 1080.

<sup>24</sup> Numerous treaties arguably apply to nonlethal chemical or biological agents, including, among others, the 1925 Gas Protocol, the 1993 Chemical Weapons Convention, and the 1972 Biological Weapons Convention. Evincing the sensitivity surrounding the use of such agents, President Ford issued Executive Order 11,850 in 1975 that renounced the use of riot control agents in time of war without national command authority approval.

population and noncombatants will include the most vulnerable. Additionally, and of great interest for developers of air-delivered weapons, is that the dosage may be difficult to control. Military use of incapacitants against a large, heterogeneous group will therefore have widely varying results. To a commander who, *ex ante*, chooses to use an incapacitating agent rather than, say, machine-gun fire to suppress a crowd mobbing U.S. forces, his decision may seem humane. To the American, international, or local public viewing the very same incident *ex post*, the decision may seem cruelly barbarous (no matter how illogical this may seem to a defense planner or technologist).

Lasers are used increasingly on the battlefield as target designators, range finders, and weapons. The U.S. Stingray antisniper system, for example, can detect optical sights and automatically put a laser on the target. Whereas these and similar systems may help obviate the need to use large quantities of lethal force and may enhance target discrimination capabilities, they also have the potential to intentionally or accidentally cause permanent blindness. The legality of blinding weapons is disputed,<sup>25</sup> but such weapons will inevitably raise sharp political and diplomatic criticism.

Even if nonlethal technologies pass legal scrutiny, appropriate doctrinal and rules of engagement development will be necessary to ensure proper matching of tactical actions with strategic objectives.

## CONCLUSION

Technological advances in several key areas can help reduce the risk and extent of collateral damage and other factors that legally and politically constrain air planners and operators. Enhanced “precision” means much more than improved weapon accuracy; it also includes, for instance, a range of supporting informational capabilities, both technical and nontechnical. The USAF should continue to devote resources to developing these capabilities to enhance mili-

<sup>25</sup> The United States generally maintains the legal position that international law imposes no absolute prohibition on permanently blinding weapons. See Joseph W. Cook III, David P. Fiely, and Maura T. McGowan, “Nonlethal Weapons: Technologies, Legalities, and Potential Policies,” *Airpower Journal*, Special Edition 1995 (<http://www.airpower.maxwell.af.mil/airchronicles/apj/mcgowan.html>), p. 6. As a policy matter, however, the Defense Department officially supports limits on their use.

tary effectiveness while minimizing risk to both U.S. forces and enemy civilians.

Technological advances, however, do not take place in a vacuum. Although legal and political constraints help drive military technological progress, this progress in turn affects constraints, most importantly by influencing public expectations. Adversaries, too, will adjust their behavior and attempt to negate U.S. technological capabilities. As the USAF develops technologies and operational concepts for employing them, it must appreciate the interplay among short-term operational decisions, long-term resource allocation decisions, and the politics of air warfare.

Legal norms and political pressures will constrain all U.S. military operations. Competing concerns regarding force protection, collateral damage, and other political issues can severely restrict operational flexibility. Because urban environments are characterized by dense populations and mingled or shared military and civilian assets, the range of available options that satisfy competing political and legal pressures will often be narrow.

The immediate as well as the long-term implications of legal and political constraints on all military operations are best understood by viewing them as part of a larger system in which strategy, politics, and technology push and pull each other in a variety of ways. The last two chapters highlighted two important sets of dynamics constituting the system: Chapter Four explored the dynamic between politically and legally constrained U.S. military decision-making and adversary military decisionmaking; Chapter Five explored the dynamic between technological efforts to satisfy political and legal demands and the nature and intensity of those very demands.

Lacking an equivalent degree of commitment to international norms or facing very different strategic, political, and diplomatic pressures than the United States, adversaries are likely to exploit asymmetrical constraints to their advantage. Especially in urban environments, where the effects of U.S. constraints are magnified, some adversaries will have tremendous incentive to breach their own legal obligations, hoping to capitalize on the propaganda effects of collateral damage or to shield military targets from attack because of self-imposed restraints on U.S. targeting.

In addition to this dynamic between U.S. targeting practices and adversary responses, a dynamic between technological advances and public expectations will continue to shape, and be shaped by, political and military decisionmaking. At its core, the law of armed conflict attempts to mediate military needs with humanitarian concerns. Its application to particular circumstances necessarily incorporates an understanding of what is militarily practical or feasible and what is not. Moreover, public pressures, from both home and abroad, help drive demand for improved weapon precision and other technologies and military operational concepts better able to protect noncombatants, but those improved capabilities then feed back into the system and drive public expectations and attitudes.

Some uncertainty exists in assessing how these inter-animating pressures and tendencies will play out because the effects of a key variable, U.S. interests at stake, are rarely tested. Few recent cases in which U.S. air forces have engaged urban targets, with the arguable exception of the Persian Gulf War, involved direct and immediate threats to vital U.S. interests. This means that, for the time being, public expectations, and hence political and legal constraints, are evolving out of only a subset of crises and operations along a much larger spectrum of potential conflict. Whether these constraints will hold, loosen, or dissolve during a major conflict involving direct threats to vital U.S. interests remains an open question.

In the short and medium term, a key challenge for political decision-makers in imposing restrictions on military decisionmaking is to appropriately balance immediate requirements for military effectiveness with other legal, political, and diplomatic priorities. For military planners at all levels, a key challenge is to design strategically effective operations under pressures and duties that may at times appear to negate military capabilities and bar optimal effectiveness. All actors in these processes must strive to harmonize competing policies as much as possible while recognizing that these decisions will bear on the pressures facing them or other actors in the future.

In the long term, the USAF faces several dilemmas. The greater commitment its actions show to minimizing collateral damage and civilian injury, the greater incentive some adversaries may have in preserving or creating those risks. And the more the USAF invests in capabilities designed to reduce civilian injury while protecting its own forces, the more inflated public and international expectations

may restrict operational decisions about employing those capabilities, and the more those expectations may “raise the bar” for future operations.

This is not to say that U.S. military capabilities and public expectations are asymptotic. Perhaps the slowly reduced public tolerance for mishaps will level out as the public comes to realize that such tragedies are inevitable in combat. And perhaps for a given crisis, the USAF may find itself capable of satisfying legal, political, and military strategic demands simultaneously and with substantial margins to spare. But the USAF will not be able to guarantee beforehand that it can do so for the range of possible contingencies. This uncertainty alone is enough to drive decisionmaking about how U.S. air forces will be employed. The unique capabilities of U.S. air forces, enhanced by continued technological advances, will give the USAF a key role in future urban operations across the spectrum of conflict, but the USAF must be cautious in its own expectations about technology and effects on constraints.

Some of the dilemmas facing the USAF and other military services are not of their own making, nor is the choice of how to deal with them entirely within their control. These dilemmas arise from the grander political process, and many of the pressures bearing on military decisionmaking reflect prioritization of social and national values established through that process. In other words, many of the legal and political constraints placed on military operational planners are done so to ensure that U.S. military actions serve broader strategic goals and political priorities.

If military force is to remain a viable instrument of state policy, then the military forces themselves must be capable of operating effectively within the set of ever-evolving constraints imposed on them. As a major actor itself in the grander political process, the USAF has some limited influence over how those constraints evolve—for example, through its military decisionmaking or its interface with the public and other international actors, including NGOs. The issues presented in this report should help the USAF design a rational and humane policy for doing so and for operating within the present and future legal and political environment.

---

## BIBLIOGRAPHY

---

- Adam, Heribert, "Failure of Military Humanitarianism," *Business Day* (South Africa), June 1, 1999, p. 13.
- Americas Watch Report, *The Laws of War and the Conduct of the Panama Invasion*, May 1990.
- Arkin, William M., "The Cyber Bomb in Yugoslavia," posted October 25, 1999, at <http://www.washingtonpost.com/wp-srv/national/dotmil/arkin.htm>.
- "Armies and Arms," *Economist*, April 24, 1999 (NATO Survey, pp. 11-12).
- Battles, Jan, "Robinson Hits at Clinical Bombing," *Sunday Times* (London), May 16, 1999.
- Berkowitz, Bruce, "Rules of Engagement for UN Peacekeeping Forces in Bosnia," *Orbis*, Vol. 38, No. 4, Fall 1994, pp. 635-646.
- Bird, Chris, "Kosovo Crisis: Yugoslav Media Fear Crackdown Amid War Fever," *Guardian*, October 8, 1998, p. 15.
- Blechman, Barry M., and Tamara Cofman Wittes, "Defining Moment: The Threat and Use of Force in American Foreign Policy," *Political Science Quarterly*, Vol. 114, No. 1, 1999, pp. 1-30.
- Bothe, Michael, Karl Josef Partsch, and Waldemar A. Solf, *New Rules for Victims of Armed Conflicts*, Martinus Nijhoff Publishers, The Hague, 1982.

- Bowden, Mark, *Black Hawk Down*, Atlantic Monthly Press, New York, 1999.
- Bulman, Timothy P., "A Dangerous Guessing Game Disguised as Enlightening Policy: United States Law of War Obligations During Military Operations Other Than War," *Military Law Review*, Vol. 159, 1999.
- Butcher, Tim, and Patrick Bishop, "NATO Admits Air Campaign Failed," *London Daily Telegraph*, July 22, 1999, p. 1.
- Byman, Daniel, Matthew Waxman, and Eric Larson, *Air Power as a Coercive Instrument*, RAND, MR-1061-AF, 1999.
- Byman, Daniel, and Matthew Waxman, "Defeating US Coercion," *Survival*, Vol. 41, No. 2, Summer 1999.
- Charney, Jonathan I., "The Persistent Objector Rule and the Development of Customary International Law," *British Yearbook of International Law*, Vol. 56, 1985.
- Cohen, Eliot A., "The Mystique of U.S. Air Power," *Foreign Affairs*, Vol. 73, January–February 1994.
- Cohen, Roger, "Fighting Rages as NATO Debates How to Protect Bosnian Enclave," *New York Times*, November 25, 1994, p. A1.
- Cook, Joseph W. III, David P. Fiely, and Maura T. McGowan, "Nonlethal Weapons: Technologies, Legalities, and Potential Policies," *Airpower Journal*, Special Edition, 1995 (<http://www.airpower.maxwell.af.mil/airchronicles/apj/mcgowan.html>).
- Crawford, Leslie, "Unrepentant Peacekeepers Will Fire on Somali Human Shields," *Financial Times*, September 11, 1993, p. 4.
- Crawley, Vince, "U.S. Urges Arms Buildup for Allies," *Defense Week*, April 26, 1999.
- Crossette, Barbara, "Civilians Will Be in Harm's Way If Baghdad Is Hit," *New York Times*, January 28, 1998, p. A6.
- Deans, Bob, "War Advisers Gauge Risks of Gulf Attack," *Atlanta Journal and Constitution*, February 14, 1998, p. 1A.
- Department of the Air Force, *Air Force Basic Doctrine*, Air Force Doctrine Document 1, September 1997.

- 
- \_\_\_\_\_, *International Law—The Conduct of Armed Conflict and Air Operations*, Air Force Pamphlet 110-31, November 1976.
- Department of Defense, *Conduct of the Persian Gulf War*, Final Report to Congress, Government Printing Office, Washington, DC, 1992.
- Department of Defense, *Dictionary of Military and Associated Terms*, JCS Pub 1/02, Washington, DC, 1994.
- Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP1-14M/FMFM 1-10/COMDTPUB P5800.7, October 1995.
- DeSaussure, Maj. Ariane L. (USAF), "The Role of the Law of Armed Conflict During the Persian Gulf War: An Overview," *Air Force Law Review*, Vol. 37, 1994.
- Fineman, Mark, "Hussein's Moves Seen as Steps in Calculated Plan," *Los Angeles Times*, January 17, 1993, p. A1.
- Freedman, Lawrence, and Efraim Karsh, *The Gulf Conflict 1990-1991*, Princeton University Press, Princeton, NJ, 1993.
- Fulghum, David A., "ALCMs Given Nonlethal Role," *Aviation Week & Space Technology*, February 22, 1993.
- \_\_\_\_\_, "Electronic Bombs Darken Belgrade," *Aviation Week & Space Technology*, May 10, 1999, pp. 34-35.
- Gellman, Barton, "Allied Air War Struck More Broadly in Iraq," *Washington Post*, June 23, 1991, p. A1.
- Gordon, Michael, and Bernard Trainor, *The Generals' War*, Little, Brown, Boston, MA, 1994.
- Gordon, Michael R., "NATO Air Attacks on Power Plants Pass a Threshold," *New York Times*, May 4, 1999, p. A1.
- \_\_\_\_\_, "U.S. Leads Further Attacks on Iraqi Antiaircraft Sites; Admits Its Missile Hit Hotel," *New York Times*, January 19, 1993, p. A1.
- Hallion, Richard, *Storm over Iraq*, Smithsonian Institution Press, Washington, DC, 1992.

- Harden, Elaine, and John M. Broder, "Clinton's War Aims: Win the War, Keep the U.S. Voters Content," *New York Times*, May 22, 1999, p. A1.
- Harden, Elaine, and Steven Lee Myers, "Bombing United Serb Army As It Debilitates Economy; Yugoslav Rift Heals, NATO Admits," *New York Times*, April 30, 1999, p. A1.
- Henkin, Louis, *How Nations Behave: Law and Foreign Policy*, Praeger, New York, 1968.
- Hosmer, Stephen T., *Constraints on U.S. Strategy in Third World Conflicts*, Crane Russak & Co., New York, 1987.
- Howard, Michael, George J. Andreopoulos, and Mark R. Shulman, *The Laws of War: Constraints on Warfare in the Western World*, Yale University Press, New Haven, CT, 1994.
- Humphries, John G., "Operations Law and the Rules of Engagement," *Airpower Journal*, Vol. 6, No. 3, Fall 1992, pp. 25-41.
- Jehl, Douglas, "Saudis Admit Restricting U.S. Warplanes in Iraq," *New York Times*, March 22, 1999, p. A6.
- Jenkins, Simon, "NATO's Moral Morass," *The Times* (London), April 28, 1999.
- Karnow, Stanley, *Vietnam: A History*, Penguin edition, Penguin Books, Inc., New York, 1997.
- Kitfield, James A., "Another Look at the Air War That Was," *Air Force Magazine*, October 1999.
- Kuehl, Daniel T., "Airpower vs. Electricity: Electric Power as a Target for Strategic Air Operations," *Journal of Strategic Studies*, Vol. 18, No. 1, March 1995, pp. 237-266.
- Lancaster, John, "Egypt Urges Diplomacy, Not Force, in U.S.-Iraq Dispute," *Washington Post*, November 14, 1997, p. A35.
- Larson, Eric V., *Casualties and Consensus: The Historical Role of Casualties in Domestic Support for U.S. Military Operations*, RAND, MR-726-RC, 1996.
- Lawson, Mark, "Flattening a Few Broadcasters," *Guardian* (London), April 24, 1999, p. 18.

- Lederer, Edith M., "Tuzla Off Limits to Off-Duty Troops," *Detroit News*, February 20, 1997, p. A12.
- Leurdijk, Dick A., *The United Nations and NATO in Former Yugoslavia*, Netherlands Atlantic Commission, The Hague, 1994.
- Lewis, Paul, "U.S.-Led Raids on Iraq Strain Unity of Gulf War Coalition," *New York Times*, January 20, 1993, p. A1.
- Lewy, Guenter, *America in Vietnam*, Oxford University Press, New York, 1978.
- Libicki, Martin C., *What Is Information Warfare?* National Defense University, Washington, DC, 1995.
- Lorenz, F. M., "Rules of Engagement in Somalia: Were They Effective?" *Naval Law Review*, Vol. 42, 1995, pp. 62-78.
- Mann, Paul, "Strategists Question U.S. Steadfastness," *Aviation Week & Space Technology*, August 31, 1998, p. 32.
- Matheson, Michael J., "The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions," *American University Journal of International Law and Policy*, Vol. 2, 1987, pp. 419-431.
- McDougal, Myres S., and Florentino P. Feliciano, *Law and Minimum World Order: The Legal Regulation of International Coercion*, Yale University Press, New Haven, CT, 1961.
- Melvin, Sheila, "Why Chinese Can Believe Worst About U.S. Bombing," *USA Today*, May 12, 1999, p. 15A.
- Meron, Theodor, "The Continuing Role of Custom in the Formation of International Humanitarian Law," *American Journal of International Law*, Vol. 90, 1996.
- Meron, Theodor, *War Crimes Law Comes of Age*, Oxford University Press, New York, 1998.
- Middle East Watch, *Needless Deaths in the Gulf War: Civilian Casualties During the Air Campaign and Violations of the Laws of War*, New York, 1991.
- Morin, Richard, "Poll Shows Most Americans Want Negotiated Settlement," *Washington Post*, May 18, 1999, p. A18.

Mueller, John, *Policy and Opinion in the Gulf War*, University of Chicago Press, Chicago, IL, 1994.

Mueller, John, and Karl Mueller, "Sanctions of Mass Destruction," *Foreign Affairs*, May/June 1999.

Myers, Steven Lee, "All in Favor of This Target, Say Yes, Si, Oui, Ja," *New York Times*, April 25, 1999, sec. 4, p. 1.

Nurick, Lester, "The Distinction Between Combatant and Noncombatant in the Law of War," *American Journal of International Law*, Vol. 39, 1945, pp. 680–697.

O'Toole, Fintan, "NATO's Actions, Not Just Its Cause, Must Be Moral," *Irish Times*, April 24, 1999, p. 11.

Parkerson, John Embry, Jr., "United States Compliance with Humanitarian Law Respecting Civilians During Operation Just Cause," *Military Law Review*, Vol. 133, 1991, pp. 31–140.

Parks, W. Hays, "Air War and the Law of War," *Air Force Law Review*, Vol. 32, 1990.

\_\_\_\_\_, "Linebacker and the Law of War," *Air University Review*, Vol. 34, No. 2, January–February 1983.

\_\_\_\_\_, "Rolling Thunder and the Law of War," *Air University Review*, Vol. 33, No. 2, January–February 1982.

*Pentagon Papers* (Gravel Edition), Vol. IV, Beacon Press, Boston, MA, (undated).

"'People's Daily' Observer Slams US Hegemonism," *BBC Summary of World Broadcasts*, June 25, 1999.

Perlez, Jane, "Serbia Shuts 2 More Papers, Saying They Created Panic," *New York Times*, October 15, 1998.

Petrowski, Lawrence C., "Law and the Conduct of the Vietnam War," in Richard A. Falk (ed.), *The Vietnam War and International Law*, Vol. 2, Princeton University Press, Princeton, NJ, 1969.

Priest, Dana, and William Drozdiak, "NATO Struggles to Make Progress From the Air," *Washington Post*, April 18, 1999, p. A1.

- Reed, Ronald M., "Chariots of Fire: Rules of Engagement in Operation DELIBERATE FORCE," in Robert C. Owen (ed.), *Deliberate Force: A Case Study in Effective Air Campaigning*, Air University Press, Maxwell Air Force Base, AL, forthcoming.
- Reisman, W. Michael, "The Lessons of Qana," *Yale Journal of International Law*, Vol. 22, 1997, pp. 381-399.
- Reisman, W. Michael, and Chris T. Antoniou, *The Laws of War*, Vintage Books, New York, NY, 1994.
- Report of the Defense Science Board Task Force on Military Operations in Built-Up Areas (MOBA)*, Office of the Under Secretary of Defense for Acquisition and Technology, Washington, DC, November 1994.
- Restatement (Third) of Foreign Relations Law of the United States, American Law Institute, St. Paul, MN, 1987.
- Risen, James, "To Bomb Sudan Plant, or Not: A Year Later, Debates Rankle," posted on October 27, 1999, at <http://www.nytimes.com/library/world/africa/102799us-sudan.html>.
- Roach, Captain J. Ashley (JAGC, U.S. Navy), "Rules of Engagement," *Naval War College Review*, Vol. 36, No. 1, January-February 1983, pp. 46-55.
- Rosenthal, Elisabeth, "Public Anger Against U.S. Still Simmers in Beijing," *New York Times*, May 17, 1999, p. A11.
- Schmitt, Michael N., "Bellum Americanum: The U.S. View of Twenty-First Century War and Its Possible Implications for the Law of Armed Conflict," *Michigan Journal of International Law*, Vol. 19, Summer 1998, pp. 1051-1090.
- \_\_\_\_\_, "The Principle of Discrimination in 21st Century Warfare," *Yale Human Rights and Development Law Journal*, Vol. 2, 1999, pp. 143-182.
- Sherman, William T., *Memoirs*, Indiana University Press, Bloomington, IN, 1957.
- Shulman, Mark R., "Discrimination in the Laws of Information Warfare," *Columbia Journal of Transnational Law*, Vol. 37, 1999, pp. 939-968.

- "Sonia Misled President on MPs' Support," *The Statesman* (India), May 11, 1999.
- Thomson, Alex, *Smokescreen: The Media, the Censors, the Gulf*, Laburnham and Spellmount Ltd., Kent, UK, 1992.
- Tubbs, James O., *Beyond Gunboat Diplomacy: Forceful Applications of Airpower in Peace Enforcement Operations*, Air University Press, Maxwell Air Force Base, AL, September 1997.
- Van Creveld, Martin, *The Sword and the Olive: A Critical History of the Israeli Defense Force*, Public Affairs, New York, NY, 1998.
- Warden, John A. III, "The Enemy as a System," *Air Power Journal*, Vol. 9, No. 1, Spring 1995.
- Waxman, Matthew C., "Coalitions and Limits on Coercive Diplomacy," *Strategic Review*, Vol. 25, No. 1, Winter 1997.
- \_\_\_\_\_, "Siegecraft and Surrender: The Law and Strategy of Cities as Targets," *Virginia Journal of International Law*, Vol. 39, 1999.
- Weigley, Russell E., *The American Way of War*, Indiana University Press, Bloomington, IN, 1977.
- Whitney, Craig R., "Generals Vow to Hit Serb TV but NATO Civilians Say No," *New York Times*, April 9, 1999, p. A8.
- Wright, Robin, "Diplomacy: U.S. Officials Concede That Discord Within 29-Nation Alliance Served to Limit Actions Against Iraq," *Los Angeles Times*, January 19, 1993, p. A10.