STRATEGY RESEARCH PROJECT

PROTECTION OF THE ENVIRONMENT DURING WAR: A NEW PERSPECTIVE

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A NEW PERSPECTIVE

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SUMMARY

More than a decade after a presidential rejection, the United States is again considering ratification of Protocol I to the Geneva Conventions of 1949. The product of an international conference convened in 1974 to further enhance humanitarian law of war, Protocol I also provides specific protections to the environment during war. At the request of the White House, the Department of Defense within the last year has undertaken a review of Protocol I. This analysis examines three options for the Department of Defense to consider in conducting its review.

OPTIONS AND CRITERIA

The three options were evaluated using the following criteria: military implications, environmental ramifications, national and international politics, and the application and enforcement of international law.

Option A—Recommend that the U.S. maintain the existing U.S. position relating to Additional Protocol I of Geneva Convention IV; that is, continue to reject ratification of Protocol I even though the United States is a signatory to the convention.

Option B—Reject Protocol I; Recommend the U.S. Propose the Development of a another International Treaty Which Exclusively Addresses Environmental Law of War Issues

Option C—Recommend Ratification of Protocol I With Specific Understandings and Reservations

RECOMMENDATION

The United States should undertake a more proactive course of action to ensure the environment receives adequate protection during war, with the President calling for a new international convention to craft a treaty that exclusively addresses environmental law of war issues.

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EXECUTIVE SUMMARY

The United States should undertake a more proactive course of action to ensure the environment receives adequate protection during war, with the President calling for a new international convention to craft a treaty that exclusively addresses environmental law of war issues.

More than a decade after a presidential rejection, the United States is again considering ratification of Protocol I to the Geneva Conventions of 1949. The product of an international conference convened in 1974 to further enhance humanitarian law of war, Protocol I also provides specific protections to the environment during war. At the request of the White House, the Department of Defense within the last year has undertaken a review of Protocol I. This reexamination is being undertaken primarily by military and civilian lawyers within the Office of the Secretary of Defense's (OSD) Office of General Counsel and the Army's Office of the Judge Advocate General.

The impetus for our analysis comes from the Protocol I review and our perception that an examination by military professionals outside of the legal community provides a different perspective on the issue. Our intent in assessing the additional courses of action is to show that other alternatives deserve thoughtful consideration even if they are ultimately rejected. Our research into this subject indicates that this may not be happening.

OPTIONS AND CRITERIA

The Department of Defense has an array of options available for recommendation to the President regarding the status of the environment during conflict. We examined three using evaluative criteria based upon our background research, including military implications,

environmental ramifications, national and international politics, and the application and enforcement of international law. A major assumption of this analysis, one that is far more subjective than objective, is the importance we see in protecting the environment.

Option A—Recommend that the U.S. maintain the existing U.S. position relating to Additional Protocol I of Geneva Convention IV; that is, continue to reject ratification of Protocol I even though the United States is a signatory to the convention.

Option B—Reject Protocol I; recommend the U.S. propose the development of another international treaty which exclusively addresses environmental law of war issues.

Option C—Recommend ratification of Protocol I with specific understandings and reservations.

RECOMMENDATIONS

This analysis shows that either maintaining the status quo or embracing Protocol I, each for its own and separate reasons, offers a dubious set of protections for the environment. Although we place great confidence in the decision-making capacity of our own military leaders, the potential for widespread environmental destruction rests equally with the actions of others. Therefore, instead of viewing international environmental law as a constraint upon our commanders, we have concluded that it is more useful to view it as a means to shape the behavior of other states that are more likely to push the destructive boundary.

As it has in the past with other international constraints, the U.S. military will need to operate within the boundaries of these new conditions. Additionally, developing international support for a strong enforcement mechanism will be essential for success.

Recognizing the support within today's military for the status quo, implementing Option B will require a well planned and coordinated effort. First, we must show that the new treaty will provide sufficient protection to military commanders, assuming that they are using their best judgment and are giving the environment adequate consideration when making operational decisions. The status of combatants relative to the enforcement mechanism must be clear, and commanders must be assured that they will be protected when their decisions are within the spirit of the treaty.

Implementation of this option is a politically attractive one for the current administration, and it would allow the administration to demonstrate its concern for the environment while exercising state craft. The United States could claim the moral high ground on the issue of protecting the environment. In such a manner, the United States will shape the discussion and be "first to the chalkboard" in developing treaty language.

Although it is clear to us that a new treaty is the answer, we recognize that there are several means by which this could evolve. For example, some have recommended that the new treaty take the form of a "Fifth" Geneva Convention. Others believe it would be best to use the auspices of the United Nations to create a wholly new environmental treaty, separate and distinct from previously ratified international Law. A major challenge in crafting specific language in the treaty will be to achieve consensus on precise definitions for such terms as "long term," "severe," "widespread," and "natural environment."

As has been the case with Protocol I, ratification of the new treaty by the U.S. Senate will be as great a challenge as negotiating a treaty that will be adopted internationally. Clearly this will require a sustained effort by the Department of State and others, but it nonetheless offers the best prospect of continuing to keep many nations diplomatically engaged.

CHAPTER I

Warfare, by its very nature, is destructive, and the notion of protecting the environment during war is counterintuitive to combatants. While doing whatever is necessary to defeat the enemy, belligerents have historically seen little reason to concern themselves with environmental destruction other than to gain some military advantage. The lasting effects of the two World Wars precludes, even today, access to certain areas. While much has been learned in recent years about the significant impact modern warfare can have on the environment, without consensus on international restrictions it remains improbable that any real concern for the environment will be exercised during war. Perhaps of more serious concern is that we are also just beginning to see that advanced weaponry may damage the environment in once-unimaginable ways.

Since the end of the Gulf War in 1991, a number of international conferences and symposia, attended by military professionals, lawyers, environmentalists and diplomats, have been convened to review mechanisms to protect the environment during armed conflict. Predictably, there has not been complete agreement on the appropriate level of environmental protection during conflict or the adequacy of guidance to operational commanders on this subject.

The goals of this analysis are to examine past international efforts and the current U.S. position with respect to protection of the environment during war and to make recommendations to the Secretary of Defense regarding a future policy. Specifically, we will propose that the United States undertake a more proactive course of action to ensure the environment receives adequate protection during war, recommending that the President call for a new international convention to craft a treaty that exclusively addresses environmental law of war issues. A critical element of this recommendation is our recognition that operational imperatives must be

considered in the formulation of any new treaty; but just as important is the premise that the environment itself has inherent value and thus deserves protection in its own right. Adoption of this recommendation will also have the effect of enhancing the U.S. position of world leadership on this vital and increasingly salient issue.

BACKGROUND

More than a decade after President Reagan's rejection, the United States is again considering ratification of Protocol I to the Geneva Conventions of 1949. The product of an international conference convened in 1974 to enhance humanitarian law of war, Protocol I also provides specific protections to the environment during war. Although the treaty was signed by the U.S. in 1978, no U.S. president has forwarded it to the Senate for ratification because of serious reservations within the Departments of Defense and State. A more thorough discussion of U.S. objections to the treaty, which relate to its environmental and non-environmental provisions follows within this paper. There is little doubt that they pose a significant barrier to the treaty's being ratified by the United States.

At the request of the White House, the Department of Defense within the last year has undertaken a review of Protocol I. This reexamination is being undertaken primarily by military and civilian lawyers within the Office of the Secretary of Defense's (OSD) Office of General Counsel and the Army's Office of the Judge Advocate General.

The impetus for our analysis comes from the Protocol I review and our perception that an examination by military professionals outside of the legal community provides a different perspective on the issue. We began our analysis with no preconceptions of Protocol I and few personal or professional biases other than those resulting from recent operational experience.

Additionally, our aim was to consider options outside of the current DoD paradigm, and our final recommendation is one result of this intent.

ENVIRONMENTAL PROTECTION

Public interest in environmental protection, both domestically and with important allies, cannot be overestimated. Although the recently established Office of the Assistant Secretary of Defense for Environmental Security is focused on peacetime protection of the environment and natural resources, it serves as evidence of the Clinton Administration's desire to accept protection of the environment, both here and abroad, as a national interest. However, the Administration cannot effectively address Environmental Law of War, with its military operational ramifications, without DoD's support and endorsement.

U.S WORLD LEADERSHIP ROLE

One hundred forty-six nations, including many of our closest allies, have ratified Protocol I, despite its many perceived flaws. With the end of bipolarity in 1989 and the emergence of a single superpower, other nations will continue to look to the U.S. for direction and leadership. U.S. failure to ratify this treaty or develop a viable alternative may undermine our leadership role.

On a more pragmatic level, as additional countries achieve ratification of Protocol I, our ability to lead in coalition warfare may also prove to be more difficult, as operational commanders from other nations will be bound by provisions of a treaty in which we refuse to participate.

THE CHALLENGES OF PROTOCOL I

Only 2 of the 102 provisions of Protocol I specifically address the environment, since the Protocol's primary focus is on humanitarian law and the victims of international armed conflict.

Even if the United States should decide to take an active role in developing law of war to protect the environment during conflict, there are numerous reservations about other portions of Protocol I (to be covered in greater detail later in this paper) that hinder its ratification. Nonetheless, the Protocol's environmental provisions, its wide acceptance in the international community, and the White House request for a new review require that it continue to be considered a viable option, the strong reservations to Protocol I that have forced an examination of other alternatives. For this reason, in addition to considering both acceptance and rejection of Protocol I *in toto*, we have developed a third option for analysis that offers a new means for protecting the environment during war. As the purpose of our analysis is to examine the environmental aspects of warfare, which encompass targeting the environment, using the environment as a weapon, and collateral damage to the environment, our consideration of Protocol I deals specifically with the environmental portions of the treaty.

OPTIONS FOR THE SECRETARY OF DEFENSE

The Department of Defense has an array of options available for recommendation to the President regarding the status of the environment during conflict. We examined three options that we consider viable alternatives for the Administration. To analyze each option, we developed evaluative criteria based upon our background research, including military implications, environmental ramifications, national and international political objectives, the implications with respect to potential adversaries and their actions, and the application and enforcement of international law.

Option A—Recommend that the U.S. maintain the existing U.S. position relating to Additional Protocol I of Geneva Convention IV; that is, continue to reject ratification of Protocol I even though the United States is a signatory to the convention.

Recommend the President reaffirm the original decision not to forward Protocol I to the Senate because of continuing concerns regarding wording and intent, and that the U.S. continue to prosecute war under other existing treaties with a bearing on law of war.

Option B—Reject Protocol I; recommend the U.S. propose the development of another international treaty that exclusively addresses environmental law of war issues.

Recommend that the President specifically reject Protocol I as unacceptable due to its flaws in wording and intent. In its place, propose a new international conference to draft a treaty that clearly and specifically protects the environment while recognizing the requirements of operational commanders during armed conflict.

Option C—Recommend ratification of Protocol I with specific understandings and reservations.

Recommend that the President forward Protocol I to the U.S. Senate for ratification, with DoD's specific reservations. To fulfill its role in the ratification process, DoD would provide a positive recommendation, qualified by a list of clearly articulated reservations. U.S. concerns over the non-environmental portions of Protocol I may jeopardize any recommendation for ratification, but this analysis assumes that either these concerns will have been overcome by the events of the last 10 years or that they can be adequately addressed through formal reservations developed in the ratification process.

In its final recommendation to the President, the Department of Defense must concern itself in large part with the struggle between environmental protection during armed conflict and operational realities. If the United States chooses not to accept codified environmental protection in times of armed conflict, the international political costs could be substantial, and evolving

customary law of war (addressed later in the paper) may restrict our operational commanders in an undesirable manner. Conversely, acceptance of stringent environmental protections based on binding international law of war may force U.S. commanders to safeguard the environment from long-term and severe damage, regardless of the operational considerations.

Whichever approach is taken by the U.S., potential adversaries with lesser conventional capabilities may be just as likely to use environmentally destructive means to conduct their own operations in order to achieve a more favorable position, to the detriment of the U.S., its allies, and the environment as a whole. Thus, it will be important that international law contain effective enforcement mechanisms.

The following chapters provide background on relevant international law, the U.S. position with respect to Protocol I, operational and political considerations, our criteria for analysis, and how well each of the options meets the criteria.

CHAPTER II

WARFARE, INTERNATIONAL LAW AND THE ENVIRONMENT

A U.S. combat commander today faces a previously unheard-of dilemma. On the one hand, winning quickly and with minimal loss of life and resources is the desired outcome. On the other hand, world sentiment and international law demonstrate that environmental protection should be a factor in a commander's decision process for prosecuting war. Compounding these totally incompatible objectives is the lack of specificity provided to our commanders in current operational law manuals. Some of this is the result of variance in the interpretation of key terminology within Protocol I. Much more is a result of the U.S.'s reluctance to accept the key provisions of the Protocol, which are perceived as intolerably constraining operational commanders.

RELEVANT INTERNATIONAL LAW

A foundation of humanitarian law is that the right of the Parties to the conflict to choose methods or means of warfare is not unlimited.[1] For over a hundred years there have been efforts to control the destruction that is a by-product of war through treaties, charters, and customary international law. The 1868 Declaration of St. Petersburg, for example, proclaimed that the only legitimate objective of states during war is to weaken the military forces of the enemy.[2] The "Martens Clause," found in the preamble to the Hague Convention (IV) of 1907, "confirms the persistence of customary international law in relation to belligerent practices not covered by treaty norms, and extends the law of war to states that have failed to accede to recent developments in

treaty Law."[3] The following sections summarize some of the most important aspects of international law relevant to the protection of the environment during armed conflict.

THE HAGUE, GENEVA AND ENMOD CONVENTIONS

The theme of the Hague Conventions of 1899 and 1907 Respecting the Law and Customs of War on Land is that the right of belligerents in an armed conflict to choose methods and means of warfare is not without limit, and that wanton destruction, superfluous injury, and unnecessary suffering should be eliminated from warfare by regulation. The Regulations Annexed to Hague Convention IV of 1907 were found at the World War II Nuremberg Trials to be "declaratory of the laws and customs of war" and therefore applicable to all nations whether or not they were parties to the convention.[4]

The 1949 Geneva Convention IV deals with the protection of civilians in time of war. Article 53 of Geneva IV prohibits the destruction by occupying powers of real or personal property of individuals, organizations or states. It is this Article that may have been violated by Iraq in the destruction of oil wells and the deliberate spilling of oil during their occupation of Kuwait. However, Article 53 allows destruction "rendered absolutely necessary by military operations." That qualifier could be invoked by Iraq to justify the destruction (as discussed later in this paper). Article 147 of Geneva IV prohibits "grave breaches," which include willfully causing great suffering or serious injury to body or health and "extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly."

The Convention on the Prohibition of Military or Any Other Hostile use of Environmental Modification Techniques (ENMOD) was ratified by the United States and entered into force for

the U.S. in January 1980. ENMOD states that parties to the Convention will not engage in any military or hostile use of environmental modification techniques having widespread, long-lasting or severe effects. Understandings appended to the ENMOD Convention define "widespread" as encompassing an area on the scale of several hundred square kilometers; "long-lasting" as lasting for a period of months, or approximately a season; and "severe" as involving serious or significant disruption or harm to human life, natural and economic resources or other assets. The ENMOD Convention's prohibitions are directed at "geophysical warfare," which implies the deliberate manipulation of natural processes. [5]

Protocol I Additional to the Geneva Convention of 1949 was completed in Bern, Switzerland in June 1977. The U.S. participated in the four sessions of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflict between 1974 and 1977 that produced Protocol I. Now ratified by 146 nations, this Protocol contains two articles that pertain specifically to the protection of the environment in times of armed conflict.[6] The great bulk of the Protocol is concerned with the protection of individuals, including civilians, and medical facilities. Environmental concerns were not intended to be the primary focus of Protocol I, and arguably it offers less protection to the environment than ENMOD. Protocol I prohibits "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment." This suggests the need to satisfy all three conditions, whereas ENMOD prohibits "widespread, long-lasting *or* (emphasis added) severe effects." Article 55 of Protocol I prohibits "methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population." It

further states that reprisals targeting the environment are prohibited. Article 56 of the Protocol is concerned with the "protection of works and installations containing dangerous forces."[7]

CUSTOMARY LAW

Customary law derives from the general practices of nations. "Custom arises when a clear and continuous habit of doing certain actions has grown up under the conviction that these actions are, according to international law, obligatory. It is state practice accepted as law between states"[8] The use of customary law allows for individuals and states to be held accountable for actions that violate existing international law, even if the Conventions and Treaties that form the basis for that law have not been signed by the offending party. Customary Law is evolutionary, in that it develops over time as the accepted practices in the community of nations change. Some would argue that the destruction of civilian power sources, which are vital to sustaining clean drinking water, health services, etc., is now a violation of accepted customary law.[9]

"VIRTUAL LAW"

There are certain actions that the U.S. will never take because of moral and cultural concerns and public affairs impact. This phenomenon has been referred to as constituting "virtual law."[10] Actions that the United States will not take relative to the environment are largely consistent with the restrictions in the environmental portions of Protocol I. Some in DoD argue that formalizing a U.S. position on the environment in conforming with Protocol I would be "too restrictive" to our operational commanders. However, if there are actions that the U.S. would never take because of "virtual law," and if likely opponents are less averse to taking those same actions, then formally restricting them under international law would certainly seem to be to our advantage.

SUMMARY

When we view the entire body of international law as it relates to the environment, we are confronted with an array of provisions and a great body of information that are intertwined with many aspects of armed conflict. What is apparent is that there is no "single source document" that provides agreed definitions, covers the status of the environment in terms of consistent standards, addresses targeting considerations, or establishes acceptable levels of collateral damage. Perhaps the greatest weakness is the lack of an effective enforcement mechanism. It is not unreasonable for the U.S. to question the adequacy of this body of law in a future that promises weapons and technologies with the potential to devastate the environment.

THE U.S. POSITION ON PROTOCOL I

After participating intensively in its development, the United States signed Protocol I in 1978. Six years later, on the recommendations of the Joint Chiefs of Staff, the Office of the Secretary of Defense, and the Department of State, President Reagan elected not to forward the Protocol to the Senate for advice and consent and declared it to be "fundamentally and irreconcilably flawed."[11] Certain elements of Protocol I that are unrelated to the environment, such as the recognition of wars of national liberation, the granting of combatant status to irregular forces and the endangerment of civilians among whom terrorists and irregulars attempt to conceal themselves, made the Protocol unacceptable to the Reagan administration.[12] Additionally, the Protocol prohibits attacks on "objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their

sustenance value to the civilian population or to the adverse Party." The U.S. position is based on the belief that outlawing scorched earth tactics and protecting facilities that have both military and civilian applications, while humanitarian in intent, unduly restricts the prosecution of military campaigns. The DoD position in opposing the Protocol is based on the desire to protect the alternative available to our operational commanders. The wisdom of the U.S. holding this position, in light of our moral and cultural aversion to destroying the environment (see "Virtual Law") is questionable, and the propensity of some nations to wage unrestricted warfare makes it more so.

CATALYSTS FOR INTERNATIONAL ACTION TO PROTECT THE ENVIRONMENT

THE LAW OF WAR AND THE LEGACY OF VIETNAM

A long-standing body of international law (specifically the Hague and Geneva Conventions and, more recently, the ENMOD Convention) has provided measures of protection for combatants, innocent civilians and property. Yet none specifically addresses the environment as worthy of special protection. Destruction of the environment had been accepted as an undesirable, but routine, outcome of armed conflict. Even in this century, perhaps the bloodiest one in human existence, the environmental scars of the two World Wars are still painfully visible. Not until after America's long experience in Vietnam was there much interest in developing internationally accepted legal means specifically to protect the environment during wartime. The RANCH HAND project, carried out by the U.S. Air Force in Vietnam, marked the first

widespread use of a chemical herbicide in war. [13] Its purpose was to defoliate large areas of the countryside, specifically the Ho Chi Minh trail, through which the North Vietnamese were able to resupply and reinforce their Viet Cong allies. The Vietnam conflict also marked the first significant attempt by U.S. forces to modify weather patterns by "seeding" clouds over Laos in order to erode soil and alter normal agricultural patterns.[14] These and other assaults upon or use of the environment in this "conventional war" were key factors leading to the creation of international instruments to protect the environment in war. Indeed, Vietnam's legacy was the creation of such protections as ENMOD and, to a lesser degree, Protocol I.

After enactment of these two international instruments, there was little formal international attention to protection of the environment in time of war was minimal, until the Persian Gulf War of 1991. This war was remarkable in that the environment itself played a key role in how the Iraqi forces under Saddam Hussein prosecuted that short conflict.

GULF WAR DAMAGES

The public perception of environmental damage incurred during the Persian Gulf war focuses on the Iraqi role. The Iraqis are credited with having discharged approximately 470 million gallons of oil into the Persian Gulf,[15] more than 40 times the amount of oil spilled into Prince William Sound after the EXXON VALDEZ oil spill of 1989. Prior to their retreat from Kuwait, the Iraqi army also torched about 730 oil wells.[16] The smoke from the oil fires complicated the delivery of some precision-guided munitions, making target acquisition difficult, and the fires also had an adverse impact on the use of some American night vision devices.[17] The hundreds of square miles of burning oil fields required an eight month international effort to extinguish and consumed over six million barrels of oil a day in its early stages.[18] Coalition efforts

in the war were also highly destructive of the environment, although damages in general appear to have been collateral and not accomplished with a punitive or malevolent intent to harm the environment. [19] Indeed, most analysts have determined that the Coalition forces were indeed restrained in their actions by the provisions of the Geneva and Hague Conventions.

THE GULF WAR AS PREDICTOR OF FUTURE WARS?

Although the war itself was brief - only 100 hours of ground combat - many of the most destructive weapons available were used for the first time since the Vietnam war. This destructiveness led to widespread concern among environmentalists that the Gulf War was a predictor of wars of the future. Despite the well-documented use of laser-guided "smart" weaponry, about 93% of all ordnance delivered in the conflict were traditional, or "dumb" munitions.[20] Vietnam generation weapons - such as fuel/air explosives, the "Daisy Cutter," a fifteen-thousand pound high explosive bomb, and air delivered cluster bombs - had all been perfected since the mid-1970s. A whole new generation of conventional weapons apparently acceptable under international law were used for the first time in the Persian Gulf War. Chief among these were depleted uranium (DU) armor penetrating shells used as anti-tank weapons. While the environmental risks associated with this technology are unclear, it is known that about 14,000 DU rounds were deployed from aircraft or tanks during the Gulf War.[21] Finally, the long-term environmental impact of Coalition attacks on Iraqi tankers in the Gulf War is still unclear and has been obscured to some degree by the fact that these damages were clearly overshadowed by the Iraqi oil spill in the Gulf.[22]

IRAQ'S VIOLATIONS OF INTERNATIONAL LAW

Notwithstanding the viciousness of the short Persian Gulf war and the environmental damages suffered, it is questionable whether existing international law was violated by Iraq. If so, were the enforcement and punitive provisions of those laws and treaties adequate, or are changes to the treaties - or new legal protections - warranted? Many feel that, at a minimum, Iraq committed numerous and serious violations of provisions of the Hague and Geneva Conventions.[23] If one considers only the 730+ oil wells ignited by the Iraqis in Kuwait, violations of Articles 23 and 55[24] of the 1907 Hague Convention IV, it is probable that Iraq destroyed enemy property in the absence of military necessity. The oil well burnings also clearly violated Articles 53 and 146 of Geneva IV, which prohibit "destruction...of real or personal property...except where such destruction is rendered absolutely necessary by military operations."[25] Arguably, the Iraqi action could be viewed as a "grave breach" of the Convention, inasmuch as the well burning was "an extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully or wantonly."[26] Similarly, Articles 48 and 52 of Additional Protocol I to Geneva IV appear to have been violated, since the oil well burning failed to distinguish between military and civilian objects of war, as required.[27]

ENFORCEMENT[28]

Despite the unprecedented degree of environmental damage to air quality and fisheries in the Persian Gulf, the focus after the war was upon economic remuneration, and neither Kuwait nor Saudi Arabia filed charges against Saddam Hussein under the enforcement mechanisms of the Hague and Geneva Conventions.[29] Although the United States documented in detail the numerous violations committed through Iraq's aggression, even the United States did not seek

action against Saddam Hussein as a war criminal, instead noting that the laws themselves were not deficient but that "a greater respect for the laws of war" was required by the community of nations.[30]

INTERNATIONAL ACTION FOLLOWING THE GULF WAR

The ferocity of this short war, Iraq's blatant disregard of international law, and the ensuing and unprecedented damages to the environment propelled many nations and interested non-governmental organizations (NGOs) to discuss the adequacy of existing law, in terms of both its ability to protect the environment and its enforceability. These discussions took place at several international conferences in London, Ottawa, at United Nations sponsored events between 1991 and 1995, and finally in the United States. Dr. Glen Plant of the London School of Economics has developed a useful framework[31] for characterizing the major factions attending these international fora as falling into one of four ideological "camps":

Camp One: Those who believe that the customary international law of war and existing law found in the Hague and Geneva Conventions is adequate to protect the environment;

Camp Two: Those who hold the beliefs of Camp One, but in addition believe that Protocol I to Geneva Convention IV (as customary law) and ENMOD together provide additional and desirable environmental protections during time of war;

Camp Three: Those who believe current international law is inadequate and that it requires at a minimum reinterpretation and more likely a new legal structure such as a "Fifth" Geneva Convention focusing exclusively on the environment;

Camp Four: Those who hold that there is little distinction between protection of the environment in peace and wartime and that international law aimed at protecting the environment should not distinguish between the two.

LONDON CONFERENCE FOR THE FIFTH GENEVA CONFERENCE (1991)

The first of the international fora was held immediately after the Gulf War on June 3, 1991 in London. This conference was jointly sponsored by Greenpeace, the London School of Economics, and Great Britain's Center for Defense Studies. The purpose of the conference was to consider creation of a "Fifth" Geneva Convention on the Protection of the Environment in Time of Armed Conflict. The London Conference brought together representatives from interested governments, academia, and NGOs to discuss possible policy options before formal proceedings might begin - in other words, to frame the debate that might occur at a later time. The London Conference (also referred to as the "Greenpeace" Conference) was significant in that it was the first and most widely attended international session to "stake out" positions among all the interested parties. At this conference, Greenpeace vigorously urged the 120 participants to seek policies that would prohibit the use of the environment as a weapon, ban weapons aimed at the environment and prohibit collateral damage to the environment of a noncombatant state.[32] While this view certainly did not gain wide acceptance, the Conference did satisfactorily frame the international discussion for numerous multi-party "roundtable" discussions among experts on all sides.

OTTAWA CONFERENCE (1991)[33]

The Conference of Experts on the use of the Environment as a Tool of Conventional Warfare was held from July 10-12, 1991 in Ottawa, Canada. This roundtable conference of 49

experts was sponsored by the Canadian Ministry of External Affairs and Trade. Although it followed on the heels of the London Conference, it appears that the Ottawa Conference organizers deliberately did not attempt to pick up where the London Conference left off; rather, the Ottawa Conference attempted to examine anew the recent experience in the Gulf War and the adequacy of current international law in light of that harsh experience.[34] United States participation is said to have been both eloquent and forceful in representing the Bush administration's ideological belief that existing international protections (even absent Protocol I) were adequate to protect the environment in time of war. The conference concluded that future international efforts to protect the environment should focus upon enforcement mechanisms and not upon creation of a new international structure such as a "Fifth" Geneva Conference.[35]

UNITED NATIONS SPONSORED ACTIVITIES

The United Nations was a natural forum from which to launch discussions of post-Gulf War environmental protections. The first of these was held at the United Nations Conference on the Environment and Development (UNCED) in June 1992 at Rio de Janeiro, Brazil. Although the focus of UNCED was sustainable development, protection of the environment in time of war was addressed in Principle 24 of its concluding instrument, the Rio Declaration. Principle 24 reflects a centrist opinion, as one might expect from such a widely attended United Nations sponsored event. It is also so broadly worded that it adds little to the discussion launched at London: "Warfare is inherently destructive to sustainable development. States shall therefore respect international law providing protection of the environment in time of armed conflict and cooperate in its further development, as necessary."[36] A second United Nations expression of concern on the subject was adopted in U.N. General Assembly Resolution 47/37 of November 25,

1992, which calls upon all states to comply with existing law to protect the environment and, further, to incorporate these provisions of the law into national military law manuals so that the provisions might be implemented with speed.[37]

U. S. NAVAL WAR COLLEGE CONFERENCE (1995)

More recently, from September 22-24, 1995, the United States held a "Symposium on the Protection of the Environment During Armed Conflict and Other Military Operations" at the U. S. Naval War College at Newport, Rhode Island. The purpose of the conference was to "assess the adequacy of the international legal regime in protecting the environment from unjustified damage during armed conflict."[38] This conference was attended predominantly by operational commanders and military lawyers who specialize in environmental law. Predictably, the conference attendees concluded that the existing legal regime adequately protects the environment during international armed conflict and in military operations other than war."[39]

SUMMARY

The unprecedented level of environmental destruction in the Gulf War was clearly the impetus to reopen the debate at the international level concerning protection of the environment during war. Although enforcement of existing international law was not pursued with vigor after the Gulf War, many parties, both governmental and non-governmental, have availed themselves of a variety of international fora to assess the situation and seek new approaches to protect the environment. Although broad changes in the existing legal structure were not widely favored, the debate continues, though at a lesser tempo.

CHAPTER III

MILITARY OPERATIONS AND THE ENVIRONMENT

THE SPECTRUM OF CONFLICT

The spectrum of conflict is a continuum, with low intensity conflict in which the application of military power is restrained and selective at one end, and very high-intensity conflict such as a nuclear war, at the other.[40] The spectrum extends from "operations other than war" on the low end of intensity through all manner of "peace" operations, intra-state wars, inter-tribal conflicts, lesser regional conflicts, major regional conflicts, regional conflicts involving weapons of mass destruction, and world war. Determining the distinction between various points on the continuum is not always easy. "Intensity" is the product of several factors, including the objectives to be achieved and the location relative to the conflict of the person providing the definition.

DEFINING ENVIRONMENTAL WARFARE

Any attempt to define what constitutes "environmental warfare" underscores one of the major difficulties associated with the topic: there is not an internationally accepted definition of this or other key terms.[41] According to Webster, the environment is the complex of physical, chemical, and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival. More simply stated, the environment is our natural surroundings that support life. From that understanding, we then define "environmental warfare" as the destruction of any aspect of our natural environment by means of armed conflict. There are four scenarios that illustrate the forms that environmental warfare may take:

(1) When the environment is specifically targeted to be destroyed by one party waging war on another. Arguably, the release of oil from Kuwait into the Persian Gulf by Iraq in February of 1991 falls into this category.

(2) When the environment is deliberately manipulated by one belligerent in an attempt to harm another. The actions by the United States in its attempts to "seed" clouds over Vietnam fall into this category. As technology advances, this is an area that may be further exploited with effects that are extremely harmful to human welfare.[42]

(3) When the environment is harmed by the "unintended consequences" of one or more belligerents in an armed conflict. This scenario illustrates the challenge to commanders in the future as conventional weapons systems grow more powerful and our ability to monitor the impact of weapons systems on the environment advances. It is arguable that the attacks on the Iraqi power grid by coalition aircraft created significantly greater environmental damage in that urbanized society than did damage to military targets.[43] The area of unintended consequences to the environment may include the future effects of unexploded munitions, abandoned land mines, and expended depleted uranium rounds scattered across battlefields.

(4) When installations containing dangerous forces are attacked, such as dams and nuclear generating facilities, which may have great impact on the environment over wide areas as these "forces" are unleashed. During World War II the allies sought to damage the German industrial base in the Ruhr Valley by destroying the Mohne and Eder Dams, which resulted in the destruction of agricultural land and animals.[44] The Huayuankow Dam on the Yellow River was destroyed in the Second Sino-Japanese War.

For clarification, we are not looking at "environmental terrorism" *per se* in this paper. We define environmental terrorism as attacks on the environment by groups attempting to inflict their

will or forward an agenda without resorting to conventional armed conflict. For example, if the bombings of the World Trade Center in New York and the Federal Building in Oklahoma City had been directed at atomic energy plants, then they might have constituted environmental terrorism. We see environmental terrorism as an area that merits great attention as non-rational actors look for asymmetric levers against forces of stronger conventional capability. However, environmental terrorism is not our focus here.

PRINCIPLES OF WAR

Any examination of law of war must necessarily begin with a consideration of how wars are fought. The principles every nation and its combatants use to win in battle relate directly to the destructive nature of war. The U.S. military recognizes nine principles of war, including mass, offensive, and maneuver. By their very definitions and corresponding application, these principles run counter to the notion of limiting environmental damage during war.

> Mass—Concentrate combat power at the decisive place and time.
>
> Offensive—Seize, retain and exploit the initiative.
>
> Maneuver—Place the enemy in a position of disadvantage through the flexible application of combat power.[45]

As is readily apparent, each of these principles requires the commander to bring to bear the necessary force, wherever required, to achieve the given objective.

Doctrinal training, which uses such terms as concentrate, exploit and flexible application of combat power, leaves little room for restraint to protect the environment. It is the notion of necessity, to be addressed later in this section, that governs the application of force, with proportionality governing the degree of force used. In the words of one Army leader, "The goal

of minimizing environmental impact is best achieved by applying the principles of war to achieve quick, decisive victory. Unavoidable environmental impacts, necessary and proportional to such a response, must be allowed. Restricting the application of combat power to predictable patterns of behavior based on environmental considerations must be avoided."[46] Thus, in the minds of the military leadership, any restrictions placed on operational commanders can only serve to create an unacceptable prescription by jeopardizing mission accomplishment, causing uncertainty, and potentially risking U.S. lives.

MILITARY NECESSITY AND PROPORTIONALITY

Although one may come away from reading the discussion above with the impression that warfighters should be unconstrained in their efforts, it is clearly understood that there are both customary and codified limitations on their conduct. These have been previously discussed, but two principles have particular significance for any examination of environmental protection during war: military necessity and proportionality. Emanating from long-standing customary and codified law of war, which declares that combatants do not have the right to inflict unlimited injury to the enemy, these principles evolved in an effort to enhance humanitarian protection.

Simply put, military necessity prohibits any harmful act that which is not related to gaining an advantage on the battlefield. Thus, in applying military necessity to the realm of humanitarian law, the combatant must be able to link a destructive act, whether it is against humans or their property, directly to a specifically desired, militarily relevant outcome. In other words, the ends must justify the means. The absence of an appropriate endstate would constitute a war crime against humanity. It is the subjectivity of the term "necessity," which is not specifically defined anywhere in law of war, that leads to variation in its interpretation.[47] Thus, legitimacy of military

action many times rests upon who wins or which state is in a position to request international legal action. There are few historical instances where, given a choice, combat commanders failed to invoke military necessity while not following customary or codified law of war. Examples such as the firebombing and nuclear weapons used during the Second World War, use of chemical warfare during the Iran-Iraq war, and continued evolution and acceptance of 'total war' are just a few of the more recent examples where military necessity took precedence.[48] The U.S.'s decision to use herbicides in Vietnam was based on the need for a more technologically advanced military to locate an enemy using the most elemental form of concealment. The more recent Gulf War examples of Iraqi oil releases and setting well heads afire, and the U.S. destruction of oil platforms, resulted in environmental destruction that each side justified as having military necessity.

The difficulties posed by the potential conflict between military necessity and the protections called for by international law are compounded by the reality of collateral damage. As has been shown time and again, the direct result of a military action can often be less devastating than the secondary effects. Much of international law of war is grounded in the premise that the combatant making a particular operational decision purposefully authorizes an act that results in a war crime. But proving intent and prior understanding of a potential outcome is extremely challenging in the realm of collateral damage. With environmental damage, the problem is exacerbated by the secondary effects that may unforeseeably result from a battlefield decision when the primary outcome is justified by military necessity. As more destructive technologies continue to be developed, it may be collateral damage, both immediate and succeeding, that international law will have the most difficulty addressing.

A customary principle related to, but distinct from, necessity is proportionality. Much like the subjectivity that complicates necessity, the proportionality of a military action to the expected outcome depends upon the judgment of the decision maker. As with necessity, the military principles upon which the U.S. and most nations base their warfighting doctrine may run counter to the legal requirements of proportionality. Commanders are taught to maximize their chances of victory by massing and maneuvering forces in an offensive manner, with overwhelming force a key factor for success. A legacy of Vietnam is that the U.S. will never endeavor to enter combat or operations other than war without bringing to bear overwhelming force. In doing so, though, questions of proportionality will be raised. The extreme level of destruction inflicted upon portions of Panama City is one example of the application of this doctrine and its unintended results. Even in this limited operation, the collateral damage in certain areas near military objectives was extensive. In an examination of law of war, this example once again shows the difficulties in assessing what is an acceptable level of destruction and its relation to the judgment of operational commanders. In the realm of environmental law of war, the process is made additionally challenging by the difficulty of assessing and valuing environmental destruction, coupled with the differing national interpretations of appropriate application of force. Not surprisingly, the countries with the greatest force capabilities have the strongest reservations about any limitations on the use of that force through international law.[49]

MILITARY INTERPRETATION

Bearing in mind that these concerns are at the forefront of the military's position regarding additional environmental protections, it is important to examine how current law is interpreted and communicated to the operational level. We have addressed the state of international law in a

previous section. Operational commanders are informed of boundaries established by international law through law of war manuals and operational law handbooks published by their respective services, through training provided at all levels, and from the advice of legal experts during operational planning as to the implications of courses of action under consideration. Each service tends to interpret international law of war in a manner that is framed in the context of its own operations. There is little doubt as to the consensus within DoD that enforcement of current laws, rather than new law, is the necessary prescription for environmental protections.[50] The Army has taken responsibility for drafting a new multi-service law of war manual for DoD, a document that is sure to reflect the position that current international law is adequate in this area.

The emphasis on military law manuals is an important factor in the U.S.'s reasoning that additional environmental law of war is unnecessary. It is through these and future manuals, and associated training, that the American military inculcates consideration of environmental protection as a warfighting norm, while still providing commanders the flexibility to operate within the customary prescriptions of proportionality and necessity. Of course, this places great faith in the subjective judgment of military commanders, "relying upon their self-restraint in view of their supposed perception that attacking the environment is either abhorrent or self-defeating."[51]

There are at least two potential dangers in this, if protection of the environment is truly a desired outcome. First, although the U.S. relies upon the judgment of its commanders, there tends to be less confidence in the combatants of other nations, particularly potential belligerents with little regard, or a different standard, for what constitutes acceptable levels of environmental destruction. But we cannot expect other nations to accept prescriptive direction if we do not do so ourselves. Second, the perceptions and subjective judgments of U.S. commanders, even with

widespread use of military manuals, again leaves wide latitude for possible action taken in the name of military necessity. This danger is further exacerbated by the ambiguity in current manuals regarding acceptable levels of destruction, arising from the lack of clear definitions of terms in the various international laws and treaties which address, tangentially in most cases, the protection of the environment in times of war.[52]

CHAPTER IV

OPTIONS AND METHODOLOGY

OPTIONS FOR NOW AND THE FUTURE

As stated in the introductory chapter, there are a number of alternatives available to the Secretary of Defense for his recommendation to the President. Our methodology in deciding which of the possible options to consider in this analysis began with looking at the two alternatives currently being weighed by officials in DoD: specifically, whether to accept or again reject Protocol I. We then decided to examine an additional alternative that has been proposed by several experts and that offers a completely new course of action for DoD. All of our options are supportable and capable of being implemented, although our discussions with members of the OSD legal staff indicate that the status quo is the most likely position to be supported by DoD. Our intent in assessing the additional courses of action is to show that other alternatives deserve thoughtful consideration even if they are ultimately rejected and our research into this subject indicates rejection is not necessarily a certainty. What follows are the three alternatives we have chosen to analyze and the criteria used to do so.

OPTION A—RECOMMEND THAT THE U.S. MAINTAIN THE EXISTING U.S. POSITION RELATING TO ADDITIONAL PROTOCOL I OF GENEVA CONVENTION IV; THAT IS, CONTINUE TO REJECT RATIFICATION OF PROTOCOL I EVEN THOUGH THE UNITED STATES IS A SIGNATORY TO THE CONVENTION.

This option would maintain the position held by the United States since President Reagan chose not to send Protocol I to the Senate for ratification in 1987. That is, this option would not obligate the United States to enforce the many provisions in the Protocol that are seen as objectionable, as explained in Chapter I.

In further support of this option, many experts argue that the existing body of law in the Hague and Geneva Conventions could adequately serve to protect the environment, if only the provisions were sufficiently enforced. For example, most international legal authorities concur that Iraq violated numerous articles of these treaties with impunity, with no enforcement attempted. Thus, this option supports the position that rather than adding new international law, efforts to enhance enforcement of existing law would ultimately offer greater protection.

OPTION B—REJECT PROTOCOL I; RECOMMEND THE U.S. PROPOSE THE DEVELOPMENT OF ANOTHER INTERNATIONAL TREATY THAT EXCLUSIVELY ADDRESSES ENVIRONMENTAL LAW OF WAR ISSUES

This alternative likewise recommends that the President once again reaffirm the Reagan Administration's decision not to forward Protocol I to the Senate for ratification, but it does not reply that the U.S. views existing international law of war as adequate.

Failing Protocol I's becoming acceptable to the U.S. on many grounds and because of our desire to assume a world leadership role in articulating a legitimate means for balancing operational imperatives with protection of the environment during times of conflict, the President should propose a new convention that exclusively addresses these wartime environmental issues. To preclude this convention from becoming bogged down in international squabbling, the U.S. would insist that the new agreement both clarify and extend existing law in

a manner which recognizes that war is inherently destructive but that there must be specific, unambiguous and enforceable limits to that destruction. With a combination of extensive training, an effective means of enforcement, and international support, such an agreement would overcome the many faults that the U.S. finds in Protocol I and the limitations of the Geneva and Hague Conventions as well.

OPTION C—RECOMMEND RATIFICATION OF PROTOCOL I WITH SPECIFIC UNDERSTANDINGS AND RESERVATIONS.

Recommend that the President forward Protocol I to the U.S. Senate for ratification, with DoD's specific reservations. To fulfill its role in the ratification process, DoD would provide a positive recommendation, qualified by a list of clearly articulated reservations. Ratification would be based on U.S. involvement in the formulation of the Protocol and the weight of its many positive aspects. This option is a change from the previous U.S. position on Protocol I. Based on the many reservations that existed in 1987, President Reagan declared that it was "fundamentally and irreconcilably flawed" and he declined to forward it to the Senate for ratification. Many of the objections that existed in 1987 have been overcome by the passage of time and the changing world situation. Additional support would be required from DoD when it comes time for the Senate to act on the President's recommendation. The final piece of successful implementation of this option includes U.S. support for efficient enforcement by the world community, as well as an effort to enhance education and training on concern for environmental issues during armed conflict.

A METHODOLOGY FOR ANALYSIS

In considering the most objective means to evaluate the various options open to the Secretary of Defense, it was immediately obvious that a set of specific criteria was required. The intent in using these criteria is to reduce as much as possible the subjectivity that surrounds the very nature of the problem. We developed five criteria that take into consideration the perspectives, concerns and desired outcomes of both national and international stakeholders. They are (1) Military Implications, (2) Environmental Impact, (3) Enforcement, (4) Political Objectives, (5) International Implications. Following a complete description of each criterion below, each of the three options will be analyzed in the next chapter.

MILITARY IMPLICATIONS

This criterion is intentionally placed first in the analysis, as it is one of the few with the potential to touch directly upon the lives of U.S. servicemen and women. As previously outlined, the U.S. military doctrine places great reliance upon the judgment of its commanders and emphasizes overwhelming force at the appropriate time and place on the battlefield. U.S. unwillingness to accept previous international effort to codify protection of the environment during war can be attributed in large part to constraints limiting operational flexibility for our warfighters, as well as the potential for international prosecution of transgressors. Thus, our analysis of each option will address how our doctrine and its application would be affected. With the principles of military necessity and proportionality traditionally serving as the guidelines for where and how the U.S. uses its military force, each option will be examined in its relationship to these key principles. If the option potentially 'ties the hands of commanders,' we

will attempt to assess the potential for increased risk, and its consequent level of acceptance by the U.S. military.

In addition to examining each option in light of today's military reality, the options must also be examined in relation to potential leaps in military technology. It will not be enough to assume that current weapons technology, with its limited effects upon the environment (outside of the nuclear arena), will be the reality even in the near future. Just as the ENMOD treaty achieved international acceptance thanks to an understanding that future, unknown technology may permit undesirable environmental manipulation, each of the proposed options will be considered not only for its potential for future environmental protection but also for its potential influence on the battlefield of the future.

Finally, each of the options will be examined with respect to its implications for coalition warfare. We have already seen in the Gulf War that unless the U.S. and its allies are fighting with the same international "rule book," the potential for both doctrinal and actual warfighting disagreements is increased, which may jeopardize our capability to serve as a future coalition leader.

ENVIRONMENTAL IMPACT

Each option must be evaluated in terms of its potential environmental consequences. As proposed in the introduction to this analysis, our position is that the environment has value beyond its direct benefits to mankind and that it is innately deserving of protection. Therefore, we will reach conclusions by assessing the potential for environmental destruction under each option. Recognizing that some level of environmental destruction is an inevitable byproduct of warfare, the level of destruction that can reasonably be anticipated under each option will be

assessed. It is important to appraise the environmental impact separately from the military implications, so as to clearly delineate the value of environmental protection to be gained under each option. As with the military implications, it will be critical to anticipate the possibilities of future technologies and their potential for environmental destruction.

ENFORCEMENT

Each option will be evaluated with respect to its enforceability. A consistent theme of our research and interviews with persons from all ideological camps is that enforcement in general as it applies to all international laws is a difficult goal to achieve. This clearly proved to be the case in the Gulf War. Enforcement can take several forms, all of which are important. One dimension is the willingness of parties to a given treaty or convention to refer violations of international law to the United Nations or other appropriate agencies who have legal jurisdiction.[53] Another dimension is whether the appropriate international authorities take timely, sufficient, and vigorous action once a violation is reported. A third dimension, assuming the charge is proven, is whether the enforcement sanctions themselves are sufficient to deter a repeat of the violations by the offending party or by other parties to the treaties.[54] It is our belief that effective use of the sanctions allowed under international law (reparations, trial for war crimes and reprisals) are important elements in deterring wanton disregard for international law.[55] Current and recent international tribunals to prosecute war crimes in Bosnia and Rwanda give us some optimism that enforcement, even with its many difficulties, is possible.

POLITICAL OBJECTIVES

Each option will be evaluated with regard to its compatibility with U.S. political objectives, both domestic and international. This is a particularly difficult task, since both our

domestic and international political objectives frequently shift, often upon changes in administrations. For example, the current U.S. domestic political agenda, as suggested by the Clinton Administration's strong support of environmental issues and Vice President Gore's important role in promoting them, would more likely support ratification of Additional Protocol I in order to protect the environment than did either the Reagan or Bush administrations. Similarly, each option will be evaluated as to whether the proposal would generally meet our international political objectives. As in the case of domestic policies, this can be something of a "moving target" given ideological differences among Presidential administrations—not to mention changes in the international realm and our foreign policy responses.

INTERNATIONAL IMPLICATIONS

The various options will be evaluated in the context of our belief that the U.S. strongly desires to retain its leadership role in a global community with a high level of concern for the environment. Moreover, it makes sense for us to use our current influence as the sole superpower to shape the rules that will be applied in the uncertain future. The U.S. National Security Strategy of Enlargement and Engagement recognizes that the environment and natural resources represent potential security risks in the next 20 to 30 years.[56] The International Committee of the Red Cross (ICRC) remains very interested in the ratification of Protocol I, asking each new U.S. Administration to join the 146 nations that have ratified the document.[57] The attention attracted to French experiments with nuclear weapons in 1996 is indicative of worldwide sensitivity to any weapon that is viewed as a threat to the environment. Issues such as the environmental impact of world population trends continue to receive much attention. Such a high level of interest and concern constitutes a broad constituency for a nation that can

build consensus and assume a leadership role on the issue. Our criterion will evaluate the impact of each option on the U.S. world leadership role, now and in the future. Selection of an option that enhances the credibility of the U.S. with other nations, no matter what their position on this specific issue, is also desirable.

Our criterion must evaluate each option in terms of the possible role of regional powers. Ensuring that regional powers support an acceptable standard for the protection of the environment during armed conflict will give the U.S. leverage without having to become directly involved in every dispute. The option that we select will be based in part on how well it encourages regional powers to act consistently.

CHAPTER V

OPTION ANALYSES

This chapter contains an analysis of the three options under consideration. After setting forth some initial assumptions, we assess each of the options according to the criteria explained in the preceding chapter. Our recommendations are contained in Chapter VI.

ASSUMPTIONS

In an analysis of the value, practicality and viability of these options there are certain assumptions and considerations that must be stated up front. Foremost is the position that the environment is inherently valuable and tangible or quantifiable benefits to mankind are not necessary to justify its protection.[58] Each of the three alternatives under consideration would afford some level of environmental protection. We believe that U.S. military commanders, regardless of the option selected, will continue to regard protection of the environment as an important consideration during military conflict. However, we do not assume that protecting the environment will be a consideration for all parties to future conflict. The potential for environmental destruction during armed conflict, or whenever the environment is targeted, is unlimited. This potential destruction may be diminished if the environment receives specific legal protections.

Protection of the environment and its relationship to the use of nuclear weapons will not be addressed in detail in these alternatives. Although massive and lasting destruction of the

environment is a known consequences of the employment of nuclear weapons, their inclusion in the effort to reach international consensus on protection of the environment during armed conflict would unduly complicate any accord. Thus, we accept that other efforts to prevent the use of nuclear weapons will indirectly result in environmental protections.

Although we are considering an option that proposes an entirely new international agreement, it is beyond the scope of this analysis to develop a detailed draft treaty. Several noted authors have put forward proposals for such an agreement.[59] Given the many years it takes to achieve agreement and ratification of international treaties, proponents of our Option B understand this is a long-term endeavor.

Another key assumption is that Protocol I is of limited value in protecting the environment because it is unlikely ever to be ratified by all the major military powers because of objections that are unrelated to environmental protection. With so much of Protocol I devoted to important but non-environmental issues, it would be foolhardy to proceed down the path toward its ratification only in order to protect the environment. Therefore, Option C cannot proceed unless the objections to Protocol I concerning non-environmental factors are overcome. Another assumption related specifically to Option C is that the U.S. objections and reservations to Protocol I would not be so profound as to invalidate what has already been agreed to in the document.

Finally, we assume that the United States does not intend to go forward with any additional effort to standardize the meaning of terms related to environmental damage. Currently, terms such as severe, wide-spread and long-lasting appear in the various existing treaties and protocols without an agreed standard definition.

MILITARY IMPLICATIONS

Operational Flexibility. From the perspective of the U.S. military, the status quo (Option A) offers some advantage in flexibility over other alternatives. Traditional wartime constraints, as defined in the law of war, continue to apply. Indeed, legal constraints on the decision-making of military commanders are not inconsequential. As we saw during the Gulf War, legions of military lawyers advised General Schwartzkopf and other commanders within the U.S.-led coalition. Under the status quo option, theoretically no additional constraints would apply. There would be no new requirements for training military personnel beyond the substantial training already being conducted on the law of war.

A new treaty with specific language on environmental protection (Option B), in addition to being difficult to achieve, may serve to restrict the operational flexibility so important to U.S. operational commanders. Proponents of a new treaty would contend that the versatility and flexibility of the U.S. military allow it to work around restrictions and achieve swift victory over any opponent. U.S. commanders should find a potential loss of flexibility somewhat offset by a clear understanding of the limits to acceptable action. Conceivably, this might speed the tactical decision-making process by precluding the need to seek higher level approval for actions that will be seen more clearly as legal.

In proposing a new international convention and providing the leadership to make it a reality, the U.S. would begin to lay the groundwork for ensuring the needs of the military are properly recognized. This position recognizes the importance of the U.S. military's emphasis on mission accomplishment through the forceful application of the principles of war. It is reasonable for the professional military to be suspicious of any international effort that could limit the

application of our overwhelming and technologically superior force. The resistance to Protocol I is a by-product of these same suspicions.

With the ratification of Protocol I (Option C), our military doctrine and training would have to be modified to reflect the increased legal responsibility of commanders and to give the environment greater consideration during armed conflict. Commanders' interpretations of the concepts of necessity and proportionality would be under examination whenever the environment was involved, and so our manuals and leader education and training would need to add depth in these areas. The U.S. objections and reservations forwarded with Protocol I would protect the operational flexibility of commanders acting in its spirit. Our traditional reliance on the judgment and experience of commanders in the field would give way to close scrutiny of all decisions having any environmental impact. As we saw once combat operations began against Iraq in 1991, U.S. military forces rely on speed and maneuver. Restricting commanders' options could take away decided advantages of our high technology and maneuverist military, or at least slow down the decision making process as still another variable gets extensive consideration.

Military necessity. We believe that the status quo allows too wide an interpretation of military necessity with respect to causing serious environmental damage. The inability to hold Iraq accountable for the environmental damage done to the Gulf in 1990 and 1991, because Iraqi actions might have been judged to be necessary from a military perspective, is a prime example of how a liberal interpretation of necessity under the status quo fails to provide the environment adequate protection. A new treaty might subordinate military necessity to protection of the environment. Restrictions resulting from a new treaty could lead opponents to conclude that the inevitable outcomes are an increased cost of victory and a prolonging of conflict. There is little

incentive for a technologically advanced state such as the U.S. to accept limitations on how it conducts military operations when "there exists no logic of reciprocity to make adoption of restraints seem worthwhile."[60] The strongest argument in defense of restraint in extreme circumstances is that the environment has inherent value and its protection carries a value that outweighs potential military advantage. Moreover, it is difficult to imagine a U.S. military commander justifying a decision to cause serious environmental destruction when any reasonable option existed. Simply stated, U.S. military operations will always seek to minimize serious environmental damage because that is what Congress and the American people demand. Restrictions on other parties, obtained by a new treaty specifically addressing the issue of environmental protection during armed conflict, might actually level the playing field of the future.

Technology. The status quo does nothing to limit the destructiveness of future weapons and weapons systems. Indeed, it is under the status quo that highly destructive conventional weapons have flourished. "Smart" bombs, depleted uranium ordnance, and fuel-air explosives were all developed or perfected since Vietnam. Thus, the status quo would seemingly allow the continued unconstrained development of non-nuclear weapons of increasing destructiveness.

Option B, a new treaty, would provide the best means of addressing future weapons developments. By establishing a clear standard for acceptable levels of destruction, it would require that any future technology be constrained. This would preclude the need to convene additional international bodies to draft new law, a laborious and difficult process, with each new weapons development. Rather than try to address a multitude of potential technological advances, a new treaty would limit the acceptable consequences for the environment.

Although the battlefield of the future would possibly be environmentally more friendly if Protocol I is ratified, the research and development of new weapons systems would not be restricted by Protocol I alone. This lack of restriction could have a negative impact on the success of future U.S. military and coalition operations if all adversaries are not held to the same standard.

Coalition Warfare. The status quo option also does nothing to address any of the difficulties encountered in the Persian Gulf war with respect to achieving consistent environmental standards among coalition partners. The fact that the United States had not ratified Protocol I, while many coalition partners had, created the potential for difficulties in coordinating an effective international military response. Coalition warfare would be easier to coordinate with ratification of a new treaty containing clear and unambiguous language. However, the quest for clear and unambiguous language increases the difficulty of building broad international consensus and could result in decreasing the operational flexibility deemed so important by U.S. military commanders.

With ratification of Protocol I, agreement on rules of engagement and operational decision-making would be easier in coalition warfare, as the United States would be in sync with the vast majority of likely partners. Since alliances and regional coalitions appear to be very much a part of our future security strategy, this option would enhance interoperability and ease possible doctrinal friction with our allies.

ENVIRONMENTAL IMPACT

The status quo, Option A, offers no new or additional protection to the environment beyond what was in place during the Gulf War. However, as we pointed out earlier, it has been convincingly argued that these protections are not insignificant. Indeed, ENMOD, which the U.S.

has ratified, could be said to offer greater environmental protections than Protocol I by virtue of ENMOD's more restrictive language, which prevents methods of warfare that may cause "widespread, long-term or severe damage to the natural environment."

Because the new treaty proposed in Option B would offer specific, exclusive protections to the environment during times of armed conflict, it is easy to see that it has potentially great value in limiting environmental destruction. Unlike the other options, the desired outcome of the proposed convention would be a treaty with unambiguous standards and a clear delineation between military necessity and acceptable levels of destruction. Collateral damage will need to be addressed in this option, as the unintended consequences of collateral damage can actually exceed intentional damage. Thus, participants will need to develop procedures that require commanders to consider potential outcomes in the same manner they consider the intended results of any action. We understand that determining how this system of checks and balances will be structured is a particularly difficult task. It has been another major cause for reservation by the U.S. military, as it could put the judgment of U.S. commanders on trial in an international tribunal. We believe these reservations can be overcome by establishing clear standards for environmental protection.

The authors accept that some environmental damage is an inevitable outcome of warfare; the level of protection afforded by a new treaty would be defined by an objective set of standards that could be understood by all combatants. Although this outcome may be difficult to achieve, the potential benefit to the environment could be monumental. This is an especially relevant argument given the pace of technological advances in weapons.

Although Option B would afford significant environmental protections, it is not without its own difficulties. There is a persuasive argument that even at its most extreme, warfare has never approached the level of destruction envisioned here. The problems found in the 'widespread,

long-term, and severe' terminology of Protocol I are grounded in the difficulty of establishing baseline data for warfare's impact on the environment.[61] Even ground zero at Hiroshima and Nagasaki have completely recovered from their devastation, and it is hard to foresee comparable destruction by non-nuclear means.

Clearly the environmental implications of ratifying Protocol I would be favorable in cases of armed conflict between states that have ratified the Protocol. The potential for environmental destruction would be greatly reduced, as both weapons and tactics would be restricted to pose much less risk to the environment. Arguably, however, the greatest threat to the environment will continue to come from non-rational actors and terrorists who will not feel restricted by the Protocol in any case.

ENFORCEMENT

Inasmuch as enforcement of any treaty, and the Geneva and Hague Treaties in particular, has been identified as a universal weakness, there is a widespread desire for improved enforcement mechanisms no matter what option is selected. In short, enforceability is a key issue that must be addressed no matter the option selected. The status quo contains no mechanism that has demonstrated effectiveness in protecting the environment in times of armed conflict.

In looking at the recent Gulf War experience, there does not appear to have been any reluctance to expose violations of international law, at least at the outset.[62] The Kuwaitis were, of course, the first to complain of the attack on their sovereignty and the subsequent theft and destruction of their natural resources. Many nations, both from within the Gulf region and outside, swiftly condemned the Iraqi attack. However, there is some question as to the effectiveness and timeliness of actions taken by international bodies with the authority to address

these violations, specifically the United Nations. Even in view of international condemnation, there appeared to be a lack of readiness on the part of the world community to press the case for effective international sanctions against clear violations of law. The reasons for this are not fully apparent, but it appears that many nations in the Gulf, as well as the United States, were concerned that had Saddam Hussein been convicted by an international war crimes tribunal and incarcerated, there may have been a void of power in Iraq that could have been exploited by neighboring Iran.[63] A whole new dynamic of instability in the Persian Gulf region could have ensued. A similar case could be made concerning Slobodan Milosovich and other indicted war criminals who have yet to be apprehended in the former Yugoslavia. Nevertheless, it remains unclear why nations hesitate to hold leaders accountable for blatant violations of the rule of law.

Like any option that calls for international enforcement of accepted standards, Option B presents a number of challenges. Of greatest concern to our military will be the possibility of a U.S. commander being held accountable by an international tribunal for actions on the battlefield. It could be argued that this concern is specious, as our commanders have previously lived under the enforcement standards with other Geneva Conventions and Protocols without problems. There is a presumption that commanders will be forced to choose between protection of the environment and military necessity. The provisions of this new agreement would not allow for this type of choice, but rather would force commanders to develop alternative courses of action that preclude excessive destruction.

Whereas many opponents of additional international environmental protections argue that what is needed is better enforcement of existing law, much of the difficulty in achieving this is the lack of specificity and clarity in the current law. Failing a revision of Protocol I, efforts to provide

for better enforcement offer little promise. The most likely approach to effective enforcement must start with enforceable standards, a key component of Option B.

Arguably, the adoption of Protocol I represents little progress in the area of enforcement. There is not a strong section of Protocol I that holds out any promise that it will be more strongly enforced than previous international agreements. It remains to be determined precisely which international body would take action, and achieving agreement on sanctions for any violations under the Protocol will be problematic.

One of the great challenges to effective enforcement that would not adequately be met by simply ratifying Protocol I is the need for standardization of terminology found in various treaties and protocols that concern the environment. Protocol I only adds to the problem of determining exactly what the environment is in legal terms and of defining what level of damage to the environment is acceptable in times of armed conflict. This confusion should be viewed as a major drawback to proceeding toward ratification.

POLITICAL OBJECTIVES

Perhaps more than any of his predecessors, President Clinton has shown an acute interest in protection of the environment. Establishment of the Office of the Assistant Secretary of Defense for Environmental Security is an example of the Administration's early interest in this vital area. During the past three decades, the American public has also exhibited increasing interest in environmental protections. Consequently, although the potential risks might be perceived as high from a military perspective, the average American could be expected to endorse the viewpoint that protecting the environment is worth restraining military operations.

Despite the high degree of attention paid to the environment by this administration and its chief environmental policy architect, Vice President Gore, the desire to ratify Protocol I is not a burning issue on the environmental agenda. From the standpoint of domestic politics, there are far more important and more widely acknowledged environmental issues of higher priority, such as clean air regulations for industry and follow-up on clean water legislation passed in the 104th Congress, among others. Within Congress, ratification of Protocol I is unlikely to emerge as a major point of discussion.

Whether it be in forcing a change of leadership at the UN or taking the lead in NATO's action in Bosnia, the Clinton Administration has shown its willingness to advance U.S. interests as the world's sole superpower. A proposal to establish a new international convention to develop environmental protections could be expected to resonate well within the administration, both as a means to advance our leadership position within the world community and as evidence of support for an issue of keen interest to the President.

The decision to seek a new treaty could cause a clash between U.S. political objectives and military imperatives, particularly the possible infringement on the flexibility to employ force as deemed necessary and proportional. As noted in Chapter II, the White House has directed DoD to reexamine Protocol I. Given that military officers, and particularly senior military legal experts, have serious reservations concerning a new Treaty, considerable resistance from within DoD could be anticipated during the treaty development and ratification process. But we only envision this occurring if the major concerns over the military implications have not been addressed early in the process, thus it is important that the military be actively involved from the beginning.

Overall, a new treaty would seem to meet the Administration's current domestic political objectives, as it demonstrates a proactive effort to contain devastating future problems. Realistically, the process to achieve an acceptable treaty would extend beyond the present Administration and a significant change in the political climate might undermine the ratification process. The time required should not be a significant factor in the present decision though, as the eventual outcome is envisioned to be broadly supportable.

The assumptions listed early in this chapter with regard to Protocol I are particularly important in the political realm. If the President were to push for ratification of Protocol I before the assumptions concerning non-environmental factors of the Protocol are met, it would have an adverse impact on his standing, regardless of the level of support for protecting the environment. As stated earlier, the vast majority of U.S. objections and reservations to the Protocol are not environmentally related, and those that are environmentally related are not so powerful as to outweigh other objectionable elements of the Protocol. Ratification would give the U.S. a vehicle to enter objections and reservations to the Protocol into the record while allowing us to share in the many positive aspects of the agreement. Moreover, in the international political arena, where there is strong support for Protocol I, pushing for ratification could be viewed as enhancing the standing of President Clinton and the United States.

INTERNATIONAL IMPLICATIONS

From an international political perspective, the United States' failure to ratify Protocol I after signing it in 1978 is of some importance to many international non-governmental organizations. Among these are the International Committee for the Red Cross (ICRC) and

Greenpeace International. Indeed, it is the ICRC that has pressed the Clinton Administration to review the U.S. position and prompted the DoD review now underway.

Maintenance of the status quo does not take advantage of the U.S. status as sole superpower. Since 146 other nations have already signed and ratified Protocol I, the United States is not in alignment with the general consensus of the world community. Politicians and military planners must be concerned that Protocol I is now widely accepted as customary law and that the United States would, arguably, be obligated to uphold it. In addition, failure to support Protocol I could be seen as inconsistent with the goal of sustainable development and in particular Principle 24 of the Rio Declaration adopted by the United States at the United Nations Conference on Environment and Development in 1992. In short, it is somewhat problematic - perhaps even embarrassing - for the United States to fail to champion enforcement of a major law to protect humanity and the environment while 146 other nations have already ratified it.

The decision to propose an entirely new treaty focusing on protection of the environment will engender a combination of support and resistance from the international community. The U.S. can expect support from traditional bases of environmental advocacy, such as Greenpeace. Resistance will probably come from the countries that have not ratified Protocol I, for much the same reasons as those cited by the U.S. military. Ironically, some of the strongest resistance may come from those international players most interested in protecting the environment. The ICRC in particular, after so many years of pushing the ratification of Protocol I, may view this move as an attempt by the U.S. to eviscerate the Protocol. Thus, for this option to succeed it must be presented as separate and distinct from Protocol I, focused on environmental protections, and not perceived as a threat to the humanitarian protections afforded by the Protocol.

Perhaps more than anytime in the recent past, the U.S. is in a position to champion new international law and have some expectation for success. Acts of destruction committed by Iraq during the Gulf War, recent enforcement of international law for acts committed against humanity during the Bosnia conflict, and support for international environmental law during peacetime, have all served to overcome an international reluctance, seen as recently as a decade ago, to support new dialogue and treaties that afford protection to the global environment. Option B, if achievable with the intended balance of environmental protection and military reality, should receive broad-based support and overcome the reservations of countries and transnational organizations that until now have seen Protocol I as the best viable alternative.

Proposing a new treaty is not without risks. Of greatest concern is that a negotiating convention, once convened, may proceed in an unfavorable direction, yet it would be politically difficult for the U.S. to oppose the final product. Thus, U.S. leadership throughout the lengthy formulation process would be critical. This is an imposing task given the diverse nature of the interested parties. In assuming such a leadership role, the U.S. may be accused of exerting too strong an influence on the process, especially if the convention fails to adopt a new agreement. But the potential benefits, including further consolidation of the U.S.'s world leadership role and protection of the environment into the next millennium, argue for assuming the risk inherent in this option.

The leadership role of the United States in the international community would not be substantially enhanced by ratification of Protocol I. Because so many of our allies have already taken the risk of supporting the Protocol with its imperfections, we would not be viewed as assuming leadership merely by signing the document at this point. However, the world

community does continue to have a high level of interest in environmental issues, so positive action on the Protocol may enhance our credibility with other nations.

Simply signing the Protocol now would do nothing to enhance our policy of engagement, although it may make it easier for others to deal with us on different issues if we were in the same position with respect to Protocol I. Because the ICRC has made the ratification of Protocol I such an important issue for their organization, positive action on the part of the U.S. could make dealing with them and many non-governmental agencies easier in a wide variety of humanitarian and peace operations.

Those in the international community concerned with environmental protection are well aware that the U.S. was a major player in crafting the language of Protocol I. We participated actively in all aspects of its development and signed the Protocol at the conclusion of the sessions in Bern. The message that we send to the world by refusing to ratify, after having had the opportunity to review the agreement throughout its development and comment as the language was crafted, must be, at best, confusing. Although this is not a persuasive argument by itself, it is a factor that must be considered when reflecting on the outcome of this decision and more generally as we continue to engage on a wide variety of issues. Our credibility and appearance of knowing what we are signing up to should not be taken lightly.

SUMMARY

The many concerns discussed above prevented the U.S. military and previous administrations from supporting the ratification of Protocol I. They also make support within DoD for any new initiative problematic. These reservations were confirmed and reinforced during a symposium hosted by the Naval War College in 1995.[64] Additionally, our interviews with DoD

legal representatives charged with reviewing Protocol I for the Clinton Administration clarified these reservations, and it is unlikely that DoD will enthusiastically support another international effort to develop treaty law for protection of the environment.[65] The Secretary of Defense can expect resistance from within the Department if either Option B or C is selected. It must be argued that the changing international political landscape, advancing technologies, enhanced U.S. military capabilities, and a chance to lead and shape a new initiative, create an opportunity for success that we contend DoD cannot afford to ignore.

CHAPTER VI

THE ROAD AHEAD

As stated in Chapter I, we recommend that DoD undertake the necessary effort to implement Option B, for the reasons outlined in preceding chapters. Both of the other options have their beneficial aspects, but the costs associated with these alternatives outweigh the benefits, especially when compared with the advantages of Option B. Thus, our conclusion is driven as much by the drawbacks of the other two as by the benefits of Option B.

A major assumption of this analysis, one that is far more subjective than objective, is the importance we place on protecting the environment. Had we weighted our criteria, the environmental protections afforded by each option would hold equal significance with the military implications. We have shown that either maintaining the status quo or embracing Protocol I, each for its own separate reasons, offers a dubious set of protections for the environment. This is especially true given the uncertainty of both future technologies and the actions of potential adversaries. Without clear and unambiguous standards, we are solely dependent upon the decisions of commanders in the field. Although we place great confidence in the decision-making capacity of our own military leaders, the potential for widespread environmental destruction rests equally with the actions of others. Therefore, instead of viewing international environmental law as a constraint upon our commanders, we have concluded that it is more useful to view it as a means to shape the behavior of other states that are more likely to push the boundaries of environmental destruction.

In our analysis, we noted the risks inherent in this course of action. Nevertheless, our world leadership role should allow the U.S. to manage the process to secure the enhanced

outcomes that we see as critical. Unlike the development of Protocol I, when the specter of Vietnam directly influenced the U.S. position on various aspects of the protocol, our representatives would enter the convention with a clear direction and understanding of the desired outcomes. However, to achieve these outcomes the U.S. would need to give up the sacrosanct norm that previously recognized the precedence of military necessity over environmental protection in the tactical decision process. With clear standards of behavior outlined in the treaty, the concepts of necessity and proportionality will have specific limitations. But the U.S. military has previously demonstrated the flexibility to operate within the multitude of other limitations imposed by international law. Additionally, developing international support for a strong enforcement mechanism will be essential for success. Given the recent international efforts to prosecute war crimes in the Balkans, there is reason for greater confidence than is generally expressed in the likelihood of enforcement of the measures we propose.

Undoubtedly, there is great support within today's military for the status quo. To have any chance of success, Option B will require a well planned and coordinated implementation process. First, we must show that the new treaty will provide sufficient protection to military commanders, assuming that they are using their best judgment and are giving the environment adequate consideration when making operational decisions. The status of combatants relative to the enforcement mechanism must be clear, and commanders must be assured that they will be protected when their decisions are within the spirit of the treaty.

The authors believe this will be possible because a new treaty would not address the issues that DoD finds most objectionable in Protocol I. For example, we will not have to make any concessions on wars of national liberation or on the status of irregular forces during armed conflict. This treaty would deal with strictly environmental issues.

Implementation of this option is a politically attractive one for the current administration, and it would allow the administration to demonstrate its concern for the environment while exercising statecraft. The development of this treaty would be time consuming, but international negotiations could take place while other high priority international treaties, such as the issue of land mines and ratification of Protocol II, work their way through Congress.

Pressing for the development and ratification of a new treaty on the environment would provide the administration an opportunity to use the influence of U.S. sole superpower status to keep many nations and international organizations engaged on an issue of global importance.

From an international perspective, there are many positive aspects to such a new treaty. Environmental organizations such as Greenpeace would embrace our position. The United States could claim the moral high ground on the issue of protecting the environment. In such a manner, the United States could shape the discussion and be "first to the chalkboard" in developing treaty language.

On the negative side, a new treaty would conflict with the ICRC's desire for the United States to join with the community of nations in supporting Protocol I. Indeed, the United States could jeopardize its credibility by failing to ratify Protocol I after having participated so fully in its formulation. This loss of credibility might dissuade many Protocol I signatories from giving broad support to a new treaty.

Although it is clear to us that a new treaty is the answer, we recognize that there are several means by which this could evolve. For example, some have recommended that the new treaty take the form of a "Fifth" Geneva Convention. Others believe it would be best to use the auspices of the United Nations to create a wholly new environmental treaty, separate and distinct from previously ratified international law. A major challenge in crafting specific language in the

treaty will be to achieve consensus on precise definitions for such terms as "long term," "severe," "widespread," and "natural environment."

As has been the case with Protocol I, ratification of the new treaty by the U.S. Senate will be as great a challenge as negotiating a treaty that will be adopted internationally. Clearly this will require a sustained effort by the Department of State and others, but it nonetheless offers the best prospect of continuing to keep many nations diplomatically engaged on this important issue.

NOTES

[1] Antoine Bouvier, "Protection of the Natural Environment in Time of Armed Conflict," International Review of the Red Cross, no 285 (1991): 3.

[2] Col. James P. Terry, USMC, "The Environment and the Laws of War: The Impact of Desert Storm" Naval War College Review (Winter 1992): 62.

[3] Richard Falk, "The Environmental Law of War: an Introduction" in Environmental Protection and the Law of War, ed. Glen Plant, (London, Bellhaven Press, 1992) 84.

[4] Terry 62

[5] John H. McNeill, "Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice," paper presented at the Protection of the Environment During Armed Conflict and Other Military Operations Symposium, 20-22 September, 1995 at the U.S. Naval War College, Newport, RI, 77.

[6] Bouvier 4.

[7] Protocol Additional to the Geneva Convention of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflict, Dec. 12 1977, U.N. Doc. A/32/144, Annex I, *reprinted* in 16I.L.M. 1391 (1977) and in 72 Am.J. Int'l. 457 (1978) [hereinafter Protocol I].

[8] United States, Department of the Army, Pamphlet 27-161-1, Law of Peace-Vol. I, (Washington DC, 1979) 1-6.

[9] William M. Arkin, The Environmental Threat of Military Operations," paper presented at the Protection of the Environment During Armed Conflict and Other Military Operations Symposium, 20-22 September, 1995 at the U.S. Naval War College, Newport, RI, 23.

[10] William M. Arkin, telephone interview, 19 November 1996.

[11] Michael Schmidt, "The Environmental Law of War: An Invitation to Critical Reexamination," Journal of Legal Studies, United States Air Force Academy, 6 (1995/1996) 255.

[12] Hans-Peter Gasser, "Agora: The U.S. Position to Ratify Protocol I to the Geneva Conventions on the Protection of War Victims, Letter of Transmittal from President Reagan to the Senate," American Journal of International Law, 81.4 (1987) 910-925.

[13] Paul Frederick Cecil, Herbicidal Warfare (New York: Praeger Publishers, 1986), 30.

[14] Susan Lanier-Graham, The Ecology of War: Environmental Impacts of Weaponry and War (New York: Walker & Company, 1993) 38.

[15] John Norton Moore, Crisis in the Gulf: Enforcing the Rule of Law (New York: Oceana Publications, Inc., 1992) 4.

[16] T. M. Hawley, Against the Fires of Hell (New York: Harcourt, Brace Jovanovich, Publishers, 1992) 14. This is the best and most complete source on the day to day events of the environmental cleanup aspects of the Persian Gulf War.

[17] Michael R. Gordon and General Bernard E. Trainor, The Generals' War (Boston: Little, Brown and Company, 1995) 371.

[18] Moore 4.

[19] Stephen Dycus, National Defense and the Environment (Hanover, New Hampshire: University Press of New England, 1996) 139.

[20] Paul F. Walker and Eric Stambler, "...And the Dirty Little Weapons," Bulletin of the Atomic Scientists (May 1991) 21.

[21] United States, Department of the Air Force, Table, "A-10 Operation Desert Storm Munitions Expended," n.d. (1991), released under FOIA, quoted in William M. Arkin's paper "The Environmental Threat of Military Operations" presented at the Protection of the Environment During Armed Conflict and Other Military Operations Symposium, 20-22 September, 1995 at the U.S. Naval War College, Newport, RI.

[22] There area variety of opinions as to whether the U.S. air attacks on oil tankers in the Persian Gulf war were allowed by international law. The U.S. holds that this was a conventional attack allowed under international law. Although the U.S. is not signatory to Additional Protocol I, Kevin B. Jordan in "Petroleum Transport System: No Longer a Legitimate Target of war," 43 Naval War College Review (Spring 1990), argues at p. 47 that these attacks were violations of Protocol I. A contrary opinion is held by Bernard H. Oxman in "Environmental Warfare," Ocean Development and International Law, Vol. 22 (1991), p.434 who argues that "United States behavior in the gulf war was consistent with the requirements of Protocol I.

[23] McNeill 80 and Schmitt 245-250.

[24] Terry 63.

[25] Geneva Convention, Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, 6 U.S.T. 3516, T.I.A.S. No. 3365, 75 U.N.T.S. 287 [Hereinafter Geneva Convention IV], Article 53.

[26] Geneva Convention IV, Article 147

[27] Geneva Convention IV, Articles 48 & 52.

[28] See also Dycus for additional information on enforcement.

[29] Dycus 144-145.

[30] United States, Department of Defense, Report to the Senate and House Appropriations Committees in Response to Senate Report 102-154 (Washington, DC: U.S. Government Printing Office, 19 January 1993) 8.

[31] Glen Plant, Ed., Environmental Protection and the Law of the War, (London: Belhaven Press, 1992) 15-16.

[32] Terry 65.

[33] Hans-Peter Gasser, "For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action," Am. Journal Int'l Law 89 (1995) 637-639.

[34] Plant 167-168.

[35] Plant 168-169.

[36] United Nations, Rio Declaration on Environment and Development, UN Doc. A/CONF.151/5/Rev.1, reprinted in 31 I.L.M 874 (1992).

[37] United Nations, Protection of the Environment, UN Doc. A/RES/47/37 dated 25 November 1992.

[38] John H. McNeill, (Senior Deputy General Counsel, Department of Defense), memorandum for the Under Secretary of Defense (Policy), 6 October, 1995, 1.

[39] McNeill Memorandum 2.

[40] United States, Department of the Navy, United States Marine Corps, FMFM 1 Warfighting (Washington, DC: U.S. Government Printing Office, 1992) 21.

[41] See Plant 25 for a discussion of one view of defining the term "environment."

[42] Professor John P. Holdren, Teresa and John Heinz Professor of Environmental Policy, Kennedy School of Government, Harvard University, personal interview, 16 October 1996.

[43] Arkin 17.

[44] Lanier-Graham 24.

[45] United States, Department of the Army, Military Leadership (Washington, DC: U.S. Government Printing Office, 1990) 41-42.

[46] Joseph G. Garrett, "The Army and the Environment: Environmental Considerations During Army Operations," paper presented at the Protection of the Environment During Armed Conflict and Other Military Operations Symposium, 20-22 September, 1995 at the U.S. Naval War College, Newport, RI, 6.

[47] Schmitt 246.

[48] Richard A. Falk, "Environmental Disruption by Military Means and International Law" in Environmental Warfare, ed. Arthur H. Westing (London: Taylor & Francis, 1984) 33. Dr. Falk does concede that much effort has been made since the World War II to not only clarify international law but also extend it to meet the evolving technology of modern warfare.

[49] The principles of necessity and proportionality are covered in much greater detail and with additional military reservations in Schmidt 245 - 250.

[50] McNeill, Memorandum, 2.

[51] Plant 22.

[52]See the Department of the Army, Operational Law Handbook (1996), for the latest guidance provided to field commanders and their legal advisors on interpretation of current environmental law of war. It is interesting to note that even the U.S. has not ratified Protocol I, it

is the verbiage from the Protocol which is provided as the current standard to adhere to in military operations.

[53] Adam Roberts, Environmental Protection and the Law of the War, Glen Plant, Ed. (London: Belhaven Press, 1992) 154.

[54] Roberts 154. Roberts notes that the UN Security Council was "lackadaisical" in addressing violations of international laws of war; indeed, the U.N. never mentioned Iraqi violations of Geneva IV until it's 6th resolution.

[55] Moore 283.

[56] United States, The White House, A National Security Strategy of Engagement and Enlargement (Washington DC: U.S. Government Printing Office, 1996) 26.

[57] Captain Harvey Dalton, Office of the Deputy General Counsel, OSD; Colonel David Graham, Chief, International & Operational Law Division, The Judge Advocate General, Department of the Army; Mr. Hayes Parks, International & Operational Law Division, The Judge Advocate General, Department of the Army, personal interview, 4 December 1996.

[58] For a more thorough discussion of the differences between the anthropocentric and inherent value positions see Schmitt 238.

[59] See Falk and Plant for two proposals for consideration at an International Convention on Protection of the Environment During Armed Conflict.

[60] Falk 34.

[61] Plant 9.

[62] An exhaustive listing and discussion of Iraqi violations of international law can be found in by John Norton Moore, Crisis in the Gulf: Enforcing the Rule of Law (New York: Oceana Publications, 1992) 21-144.

[63] Phillip Zelikow, Associate Professor, Kennedy School of Government, Harvard University, class lecture, 18 Sept. 1996

[64] McNeill, Memorandum, 1-2.

[65] Dalton, Graham, and Parks, interview, 4 Dec 1996.

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