MARS MEETS MOTHER NATURE: PROTECTING THE ENVIRONMENT DURING ARMED CONFLICT

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It is, in truth, not strictly a part of our purpose to inquire at this point what is advantageous; we desire rather to restrict the unrestrained licence of war to that which is permitted by nature, or to the choice of the better among the things permitted. Nevertheless virtue itself, in low esteem in the present age, ought to forgive me if, when of itself it is despised, I cause it to be valued on account of its advantages.

Hugo Grotius[1]

INTRODUCTION

Arma arborumque cano[2]

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1. HUGO GROTIUS, *Moderation in Laying Waste and Similar Things, in* DE JURE BELLI AC PACIS LIBRI TRES, Vol. 2, bk. III, ch. 12, § 8, ¶ 1 (Francis W. Kelsey et al. trans., 1925), *reprinted in* CLASSICS OF INTERNATIONAL LAW 754 (James Brown Scott ed., Oceana Publications Inc. 1964).

2. With apologies to Virgil, see VIRGIL, AENEID, line 1 (H. Rushton Fairclough trans., 1953).

The laws of armed conflict represent a concerted attempt on the part of nations and individuals to bring the tools of rational analysis to bear upon a field of endeavor that often appears to be incorrigibly rooted in irrationality. This paradoxical enterprise of applying rational principles to facially irrational behavior has not, however, been without its healthy modicum of success. The last 150 years have seen the ascendancy of a flourishing international consensus regarding the criticality of humanitarian efforts to restrain the inhuman effects of war.[3]

As the Twentieth Century draws to a close, the methods, applications, and effects of warfare seem to be undergoing a turbulent sea change. Inevitably, the normative environment in which armed conflict occurs will likewise evolve, for the human activities of law and war exist in close symbiotic relationship.[4] One of the most visible aspects of this "revolution in military affairs"[5] is a growing appreciation for the impact that armed conflict exerts upon the environment.[6] The extension of traditional humanitarian principles govern-

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3. *See* Mark A. Drumbl, *Waging War Against the World: The Need to Move from War Crimes to Environmental Crimes*, 22 FORDHAM INT'L L.J. 122, 122 (1998).

4. On possible changes, see Michael Schmitt, *Bellum Americanum: The U.S. View of Twenty-First-Century War and Its Possible Implications for the Law of Armed Conflict, in* THE LAW OF ARMED CONFLICT: INTO THE NEXT MILLENNIUM 389 (Michael N. Schmitt & Leslie C. Green eds., 1998).

5. On the "revolution in military affairs," see WILLIAM S. COHEN (SECRETARY OF DEFENSE), ANNUAL REPORT TO THE PRESIDENT AND THE CONGRESS ch. 13 (The Revolution in Military Affairs and Joint Vision 2010) (1998); Dennis M. Drew, *Technology and the American Way of War: Worshipping a False Idol?*, A.F. J. LOGISTICS, Winter 1987, at 21; James R. Fitzsimonds, *The Coming Military Revolution: Opportunities and Risks,* PARAMETERS, Summer 1995, at 30; Dan Goure, *Is There a Military-Technical Revolution in America's Future?*, WASH. Q., Fall 1993, at 175; Andrew F. Krepinevich, *Cavalry to Computer: The Pattern of Military Revolutions, in* STRATEGY AND FORCE PLANNING 430–31 (Naval War College Faculty eds., 1997); Andrew F. Krepinevich, *Keeping Pace with the Military-Technical Revolution,* ISSUES IN SCI. & TECH., Summer 1994, at 23; Kenneth F. McKenzie, *Beyond Luddites and Magicians: Examining the MTR,* PARAMETERS, Summer 1995, at 15; Abhi Shelat, *An Empty Revolution: MTR Expectations Fall Short,* HARV. INT'L REV., Summer 1994, at 52.

6. As used here, "environment" shall indicate those conditions, circumstances, substances, and organisms which comprise the ecosystem of the planet occupied by man, i.e., earth. "Conditions" include physical phenomena such as weather or the suitability of land for cultivation. Examples of "circumstances" include the course of a river or the situation of a chain of mountains. "Substances" include timber, grains, water, and oil. The category of "organisms" subsumes both plant and animal life. Yves Sandoz of the International Committee of the Red Cross gives this description of the environment:

> The concept of the environment should be understood in the widest sense to

ing armed conflict — again somewhat paradoxically — to an area of concern not exclusively human, is predicated upon the recognition of this reality. In particular, the incipient convergence of law of armed conflict and environmental protection principles surfaces in two ways: the first involves considerations of the impact of warfare upon the natural environment; the second pertains to the use of natural forces as weapons of war. Both points of reference have received heightened attention in contemporary international law, not only on account of a growing interest in factoring environmental concerns into the military decisionmaking matrix, but also due to the greater destructive power of modern weaponry.

This article examines the conjunction between modern *jus in bello* normative constructs and the environment.[7] It begins by briefly and selectively tracing the common historical thread of wartime environmental damage, as well as the legal responses thereto, so as to render the contemporary prescriptive climate more contextually comprehensible; after all, law develops in, and responds to, specific social, political, economic, and historical contexts.[8] Particu

> cover the biological environment in which a population is living. It does not consist merely of the object indispensable to survival . . . — foodstuffs, agricultural areas, drinking water, livestock — but also includes forests and other vegetation . . . , as well as fauna, flora and other biological or climatic elements.

Yves Sandoz, *Protection of the Environment in Time of War*, UNIDR NEWSL., July 1992, at 12.

7. This inquiry falls within certain well-defined parameters. We will not attempt to discuss in any detail the related topics of arms control, arms proliferation, and test ban treaty regimes. Likewise, peacetime environmental prescriptions, environmental security issues, and human rights law do not enter into this analysis, nor do questions of remedies — i.e., the scope and cost of procedures for restoration, and compensation for, environmental damage. In addition, analysis and commentary will focus on the law itself, not its application in specific cases, such as Iraqi actions during the Gulf War.

8. For example, the context within which international tensions and conflicts emerge has been radically changed with the advent of the post-Cold War era. *See* Ingrid A. Lehmann, *Public Perceptions of U.N. Peacekeeping: A Factor in the Resolution of International Conflicts*, 19 FLETCHER FORUM WORLD AFF. 109, 109 (1995). Obviously it is still in many ways too early to say what new challenges and alignments the changes wrought by the fall of the Iron Curtain will engender. One phenomenon of the 1990s has been the growing willingness of nations like the United States to at least temporarily subordinate national self-interest to humanitarian concerns. *See* Frederick J. Petersen, *The Facade of Humanitarian Intervention for Human Rights in a Community of Sovereign Nations*, 15 ARIZ. J. INT'L & COMP. L. 871, 872 (1998). It is doubtful that humanitarian operations in Somalia, Iraq, or Bosnia even would have been thinkable in an ongoing Cold War context. *See id*. at 873. The wisdom, significance, and effectiveness of

lar attention will be paid to two determinative events — Vietnam and the Gulf War.

Contextually identifying and analyzing a legal development is only half of the picture. Legal scholars must be able to discern the relationships between ostensibly isolated events across the legal landscape. Geometry offers an apt illustration of how to approach this task. Because any number of shapes and lines can be drawn through a single point, one must be able to connect several points along a linear curve in a plane to determine its direction and shape; the more points plotted, the more accurate the picture of the curve's trajectory. Similarly, cataloging multiple normative developments can help elucidate the trajectory of a particular body of law.[9] As an example, we will discuss the increasing tendency by which environment-related law assigns value to the environment with *de minimus* regard to specifically human concerns.[10] Such a tendency carries potentially huge implications for transforming and complicating the law of armed conflict.

Predictive efforts to assess the directional vector of the environmental law of armed conflict should facilitate proactive responses to its potentially negative influences. Thus, after the historical setting has been set forth, subsequent sections of this Article will outline the current state of the law and then attempt to extrapolate its projected focus.[11] In particular, the existing prescriptive framework will be examined for adequacy. As will become apparent, the tangle of relationships generated among the various normative constructs makes for a complex picture. It is not only necessary to consider the relevant treaty-based law (which is spread across numerous instruments), but also pertinent customary law and the practice of states. Moreover, none of the relevant norms operate in a vacuum. For instance, customary practice may illuminate a given treaty provision,

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such actions remains, in each case, a matter of some debate. *See id*. at 884–85, 891. On contextuality and the use of force, see Michael N. Schmitt, *The Resort to Force in International Law: Reflections on Positivist and Contextual Approaches*, 37 A.F. L. REV. 105 (1994).

9. For instance, technological advances in the mechanisms of warfare and the increasing interdependence of the international economy have, effectively, operated in tandem to erode the interest and protections traditionally bestowed upon neutrals in the law of naval warfare.

10. *See infra* notes 148–73 and accompanying text.

11. *See infra* notes 53–190 and accompanying text.

or turn it in a new and unexpected way, and vice versa.[12] Further complicating analytical efforts is the fact that the law of armed conflict operates by drawing prescriptive spheres around member states and their activities.[13] These spherical zones of permissibility maintain a constant state of flux, and disagreements among states often arise along their sometimes porous boundaries. It is the peculiar task of international law to define and clarify, if not solidify, such boundaries — to give such shape and resolution to these prescriptive "spheres" that states may regulate their own conduct in responsible and appropriate ways.[14]

As will be discussed, the current prescriptive framework regarding protection of the environment during armed conflict is marked by its share of structural flaws.[15] Those who deem the law to be adequate tend to fault lax enforcement and weak dissemination for the environmental abuses that have occurred. This Article tests such a characterization, questioning the practical usefulness and effectiveness of current normative guidance — for policy makers and warfighters. Our conclusion is that although the range and extent of relevant law is perhaps broader than a first blush review might suggest, the law remains difficult to apply in practice, contains serious definitional flaws, and viewed as a whole, lacks cohesiveness. Equally distressing, from the view of both practicality and simple logic, is the growing tendency to view the issue of environmental protection during armed conflict as one wholly separate from the concerns of human existence. We argue that this trend of environmental "isolationism," if continued, threatens to sacrifice compelling human interests for the sake of an unrealistic and myopic idealism.

12. See, for example, the discussion of Additional Protocol I and the principle of discrimination, *infra*. *See* Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, June 8, 1977, U.N. Doc. A/32/144, Annex I (1977), *reprinted in* 16 I.L.M. 1391 (1977) [hereinafter Additional Protocol I]. As will be discussed, Additional Protocol I codifies the general customary international law principle of discrimination. However, the meaning given to the principle in this document does not necessarily track with precision the understanding of all states about whom may be legitimately targeted.

13. *See* Michael J. Mattler, *The Distinction Between Civil Wars and International Wars and Its Legal Implications*, 26 N.Y.U. J. INT'L L. & POL. 655, 676 (1994).

14. *See id*. at 655.

15. *See infra* notes 57–133 and accompanying text.

I. THE HISTORICAL SETTING

Although the systematic examination of the relationship between the law of war and the environment is a relatively recent phenomenon, it would be hard to imagine a war in which environmental damage, to a greater or lesser degree, has *not* occurred. In the section from which the caption to this article is taken, regarding "Moderation in Devastating a Country and Similar Matters," Hugo Grotius catalogues the testimony of ancient authorities such as Philo and Livy, who criticized and attempted to set limits on the despoliation of "inanimate things."[16] From antiquity to the present, examples of environmental destruction in war — though it may have gone by a different name in the past — abound.[17] For instance, the annals of modern warfare are replete with illustrations of the especially severe results that have eventuated from man's ability to control and manipulate the flow of water in low-lying areas.[18] As Germany's fortunes waned in the Second World War, they resorted to flooding vast areas of the occupied Netherlands — enabling them to slow the eastward Allied advance.[19] Earlier on, in 1938, the Chinese self-destructively took similar action to repel a Japanese invasion within their own territory, by destroying the Huayuankow dam on the Yellow River.[20] Both incidents resulted in massive floods, destruction of crops and cultivated lands, and loss of human life.[21] The European theater of the Second World War also experienced numerous attacks on hydro-electric dams.[22]

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16. GROTIUS, *supra* note 1, at 745–46.

17. For a detailed review of warfare's effects on the environment, see ARTHUR H. WESTING, WARFARE IN A FRAGILE WORLD: THE MILITARY IMPACT ON THE HUMAN ENVIRONMENT (1980). Table 1.2 provides the author's synopsis of "[e]cologically disruptive wars." *Id*. at 14–19, tbl.1.2.

18. On these and other environmentally destructive events, see COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, at 666–67 (Yves Sandoz et al. eds., 1987) [hereinafter ADDITIONAL PROTOCOL I COMMENTARY].

19. *See id*. at 667.

20. *See id*.

21. *See id*.

22. For example, raids on the Möhne and Eder dams in May 1943 targeted the water and power supply of the Ruhr industrial complex. *See id*. As such, the action was militarily significant and legally permissible. *See id*. However, the attacks also inflicted severe collateral damage: the death of over 1300 civilians and cut-off of drinking water and energy for the four million Germans in the region. *See id*.

Of course, the same war witnessed the unprecedented utilization of nuclear weapons. In bringing the war in the Pacific theater to an abrupt conclusion, U.S. bombardment at Hiroshima and Nagasaki also caused tens of thousands of civilian deaths, lingering radiation effects among thousands of survivors, and large-scale environmental destruction in the target areas. Judging by the virulence of the debate generated by the fiftieth anniversary of the bombings, bitter disagreement regarding the military necessity and proportionality of these actions endures.[23]

Despite the environmentally destructive nature of countless military actions throughout history, only in the last few decades has the international community begun to focus attention on environmental despoliation as a *separate* category of damage.[24] At the most basic cultural and linguistic level, the term "environment" did not begin to emerge as a separate category of concern in common parlance until the late 1960s.[25] This reality represents, perhaps, the fundamental reason the four 1949 Geneva Conventions failed to mention the environment. It was not until the time of the Vietnam War that the complexity of interrelationship between human activities and the fragile environment surfaced as a subject worthy of concern in those circles responsible for the analysis and development of the laws of war.[26]

In Vietnam, the role the environment played in driving military strategic and tactical decisions finally focused the spotlight of international legal attention on the environment *qua* environment.[27]

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23. *See, e.g.*, Gar Alperovitz, *Hiroshima: Historians Reassess,* FOREIGN POL'Y, Summer 1995, at 15.

24. *See, e.g.*, Hans-Peter Gasser, *The Debate to Assess the Need for New International Accord, in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT (Richard J. Grunawalt et al. eds., 1996).

25. *See* Michael N. Schmitt, *Green War: An Assessment of the Environmental Law of International Armed Conflict*, 22 YALE J. INT'L L. 1, 6 (1997).

26. *See* Gasser, *supra* note 24, at 522.

27. To counteract the guerrilla tactics of the North Vietnamese and Viet Cong, which tactics exploited forests and dense vegetation for cover, mobility, and even sustenance, U.S. forces took a variety of measures. These included the destruction of forests and vegetation. In addition to bombing targeted zones with conventional munitions, U.S. forces dropped herbicides over enormous areas of South Vietnam — the majority in wooded areas but some also on crop lands. Additionally, U.S. troops used heavy tractors in a massive land-clearing effort. By the end of the war, American "Rome Plows" had cleared nearly three-quarters of a million acres of land. In addition, the Air Force used chemical agents in order to modify weather patterns, increase rainfall, and reduce enemy

It was not the scale of environmental destruction that increased the level of cognizance — indeed, earlier conflicts had produced far greater devastation. Instead, the convergence and interaction of several streams of development contributed to this shift in perspective. The growth of the environmental movement largely coincided with the war and catalyzed public responses to its environmental impact. A watershed in so many other ways, the Vietnam War signaled a paradigmatic shift in environmental valuation and prioritization, while the war's environmental damage offered a rallying point for opponents of the conflict and catalyzed political animus against the war.[28] These factors came together as television delivered its nightly encapsulation of the conflict into American living rooms halfway around the world. (In similar fashion, it also delivered its encapsulation of the domestic anti-war movement.) Thus, the rise of the television age had profound implications for the science and conduct of warfare, and for the public's cognitive reception of such activity, including its impact on the environment.

It was almost inevitable that in the aftermath of the Vietnam War, clarion calls for new law to safeguard the environment during armed conflict would echo from multiple fronts. Two significant developments occurred within five years of the end of the war. First, the Environmental Modification Convention (ENMOD), restricting use of the environment as a tool or method of warfare, was promulgated.[29] Second, two separate provisions limiting permissi

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mobility. Although the true extent of environmental damage precipitated by these strategies remains uncertain, an equal measure of doubt still surrounds the question of the military effectiveness of such techniques. For a thorough account of the war's environmental impact, rendered shortly after the conclusion of hostilities, see ARTHUR H. WESTING, ECOLOGICAL CONSEQUENCES OF THE SECOND INDOCHINA WAR (1976).

28. *See, e.g.*, George H. Aldrich, *Prospects for United States Ratification of Additional Protocol I to the 1949 Geneva Conventions,* 85 AM. J. INT'L L. 1, 14 (1991). Use of the defoliants in South Vietnam was consensual. *See id*. In the interest of preventing the creation of potentially dangerous future precedents, the State Department's Office of the Legal Adviser recommended against use of these chemical agents in enemy territory. *See id*.

29. *See* Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, Dec. 10, 1976, 1108 U.N.T.S. 152, *reprinted in* 16 I.L.M. 88 [hereinafter ENMOD]. On the U.S. Senate Hearings on the treaty, see *Hearings to Hear Testimony on the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques Before the Senate Comm. on Foreign Relations*, 96th Cong. (1979), *microformed on* Sup. Docs. No. Y 4.F76/2:En8/3 (U.S. Gov't Printing Office); *Environmental Modification Treaty: Hearings on the Convention on*

ble levels of wartime environmental damage were included in the 1977 Additional Protocol (I) to the Geneva Conventions of 1949.[30] The United States is a Party to ENMOD, but has elected not to ratify Additional Protocol I, in part due to objections over its environmental provisions.[31]

Following completion of these two drafting efforts, the subject of environmental protection during armed conflict faded from international concern. The Iraqi invasion of Kuwait in 1990 quickly refocused the world's attention. Responding to the assertion of Coalition resolve to expel them from Kuwait, Iraqi leaders issued dire threats of environmentally destructive counter-attacks.[32] Environmentalists and commentators from the scientific community responded with apocalyptic predictions of impending environmental catastrophe.[33]

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the Prohibition of Military or Any Other Use of Environmental Modification Techniques Before the Senate Comm. on Foreign Relations, 95th Cong. (1978), *microformed on* Sup. Docs. No. Y 4.F76/2:En8/2 (U.S. Gov't Printing Office).

30. *See* Additional Protocol I, *supra* note 12, art. 35, ¶ 3, and art. 55, *reprinted in* 16 I.L.M. 1408–09, 1415.

31. *See* Michael J. Matheson, *Session One: The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions*, 24 AM. U.J. INT'L L. & POL'Y 419, 424 (1987).

32. *See Partial Text of Statement by Iraq's Revolution Command Council*, RUETER LIBRARY REPORT, Sept. 23, 1990, *available in* LEXIS, World News Library, News/Wires File. In the days leading up to the Iraqi invasion of Kuwait, Saddam Hussein chaired a joint meeting of the Iraqi Revolution Command Council and regional command of the Arab Socialist Baath Party which issued a statement that "[t]he oil areas in Saudi Arabia and in other parts of the states of the region and all the oil installations will be rendered incapable of responding to the needs of those who came to us as occupiers in order to usurp our sovereignty, dignity and wealth." *Id*. Saddam's Defense Minister, Said Tuma Abbas, threatened that "Cheney will see how land burns under the feet of his troops and stooges." Gayle Young, *Cheney: "Clock is Ticking" for War,* UPI, Dec. 23, 1990, *available in* LEXIS, News Library, News/Wires File. The Iraqis demonstrated their hostile intentions in December 1990, when they detonated six oil wells and ignited oil basins in occupied Kuwait. *See* William M. Arkin, *The Environmental Threat of Military Actions*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 119. The Iraqi threats served to solidify and strengthen U.S. resolve. In a letter to Saddam Hussein, President Bush warned, "You and your country will pay a terrible price if you order unconscionable acts of this sort." Text of President Bush's Letter to Saddam Hussein, REUTERS NORTH AMERICAN WIRE, Jan. 12, 1991, *available in* LEXIS, News Library, News/Wires File. The International Committee of the Red Cross (ICRC) interjected its own reminder to the parties of their obligations under humanitarian law. *See* ICRC, *Note Verbale and Memorandum* (Dec. 14, 1990), *reprinted in* INT'L REV. RED CROSS, Jan.–Feb. 1991.

33. *See* Adam Roberts, *Environmental Issues in International Armed Conflict: The Experience of the 1991 Gulf War, in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 222, 243–44.

The groundswell of environmental concern generated considerable anti-war sentiment.[34] Of course, in January 1991 the Iraqis followed through on their threats when they began pumping oil into the Persian Gulf and setting Kuwaiti oil wells ablaze.[35] When the dust of the short war settled, the "scientific" predictions of global environmental calamity proved to have been vastly overblown.[36]

The Iraqi actions, and responses thereto, shed light on an important dynamic in assessing the admissibility of environmental damage during armed conflict, that of the manner in which environmental valuation occurs.[37] Iraqi environmental despoliation precipitated near universal condemnation. Yet, the motivation for such opprobrium did not derive solely from environmental concern.

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34. *See id*. Professor Roberts further describes the consequences of this "war of words" as follows:

> Thus, in much of the political debate of the time, to be environmentally concerned was to predict global catastrophe, and to be anti-war; while those who supported the resort to war said little about the environmental aspects of a possible war. This polarization of the debate had a serious consequence. There was little if any public discussion of the means which might be used, if there was a war, to dissuade Iraq from engaging in environmentally destructive acts; and little if any reference to the laws of war as one possible basis for seeking limitations of this kind.

Id. at 244. Thus, the most virulent advocates of environmental protection shortsightedly exposed their interests to greater risk of damage in adopting an extreme, "intrinsic value" position.

35. The resulting spill was in the range of seven to nine million barrels, some 42 times the size of the Exxon Valdez spill. *See* U.S. DEP'T OF DEFENSE, CONDUCT OF THE PERSIAN GULF WAR: FINAL REPORT TO CONGRESS 624 (1992) [hereinafter GULF WAR REPORT]; *see also* WILLIAM M. ARKIN ET AL., ON IMPACT: MODERN WARFARE AND THE ENVIRONMENT — A CASE STUDY OF THE GULF WAR 63–64 (1991); KUWAIT ENVIRONMENTAL PROTECTION COUNCIL, STATE OF THE ENVIRONMENT REPORT: A CASE STUDY OF IRAQI REGIME CRIMES AGAINST THE ENVIRONMENT 29–33 (1991); JOHN NORTON MOORE, CRISIS IN THE GULF: ENFORCING THE RULE OF LAW 78 (1992). The Iraqi occupiers of Kuwait also began to damage or destroy some 590 oil well heads. *See* GULF WAR REPORT, *supra*, at 624. Five hundred and eight were set on fire; the 82 others were damaged so as to allow oil to flow freely from them. *See id*.; *see also* Sylvia A. Earle, *Persian Gulf Pollution: Assessing the Damage One Year Later,* NAT'L GEO., Feb. 1992, at 122.

36. In its report, the United Nations Environment Programme (UNEP) determined that no significant negative effects in human health or in the overall global climate resulted. *See State of the Environment: Updated Scientific Report on the Environmental Effects of the Conflict Between Iraq and Kuwait*, Governing Council of the U.N. Environment Programme, 17th Sess., at 12–13, U.N. Doc. UNEP/GC.17/Inf.9 (1993); *see also Report on the UN Inter-Agency Plan of Action for the ROPME Region*, U.N. Environment Programme, Oct. 12, 1991, *reprinted in* IRAQ AND KUWAIT: THE HOSTILITIES AND THEIR AFTERMATH 339 (Mark Weller ed., 1993) (detailing the survey of war-impacted areas).

37. *See infra* notes 39–52 and accompanying text.

Rather, the value of damaged environmental interests was inextricably linked to the fact that Kuwaiti oil represented a critical resource to Western economic interests.[38] Thus, environmental value, and the corresponding interest in its protection, cannot be separated in this instance from the perceived endangerment of *human* economic and material interests, any more than environmental concern during the Vietnam War can be clinically isolated from anti-war fervor. In this war as in the latter, intrusion of factors other than pure concern for the environment was unavoidable.

For various reasons, the post-Gulf War period has evidenced very little tangible progress in addressing environmental damage during hostilities.[39] Though the United States issued a report through the Secretary of the Army (later published by the U.N.) identifying several Iraqi actions resulting in environmental damage as violative of Hague Convention IV (1907) and the Fourth Geneva Convention (1949),[40] no Iraqi leader has been held personally accountable for ordering the destruction.[41] In 1990, the U.N. Security

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38. *See* JOHN NORTON MOORE, CRISIS IN THE GULF: ENFORCING THE RULE OF LAW 9–10 (1992).

39. The cease-fire resolution provided:

> Iraq, without prejudice to the debts and obligations of Iraq arising prior to 2 August 1990 [sic], which will be addressed through the normal mechanisms, is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait.

S.C. Res. 687, U.N. SCOR, 45th Sess., 2981st mtg., ¶ 16, U.N. Doc. S/RES/687 (1991), *reprinted in* 30 I.L.M. 846, 852. In other words, the *ab initio* violation of the *jus ad bellum*, specifically U.N. Charter article 2, paragraph 4, was the basis for liability. This led to the Commission's interesting conclusion that Iraq would also be responsible for damage caused by Coalition forces for the reason that the initial Iraqi wrongfulness constituted the cause in fact of such damage, in the absence of which, it would not have occurred. *See* Compensation Commission, Governing Council Decision No. 7, ¶ 34, U.N. Doc. S/AC.26/1991/7/REV.1, *reprinted in* 31 I.L.M. 1009, 1051.

40. *Report on Iraqi War Crimes (Desert Shield/Desert Storm)* (unclassified version), at 13, 41, *also issued as* U.N. Doc. S/25441, Mar. 19, 1993.

41. Professor Adam Roberts attributes the failure to pursue Iraqi liability for war crimes to six primary considerations:

> First, there was wide agreement in the months before January 1991 that if there was to be a war for the liberation of Kuwait, it had to be a limited war for clearly limited and defined objectives; that being so, the capturing of Saddam Hussein and colleagues, however criminal their acts, would not have easily fitted into the Coalition scheme of things. Second, the Iraqi leaders would have been difficult to arrest even if the Coalition action had been more

Council issued a resolution holding Iraq liable for damages caused by the invasion and occupation of Kuwait.[42] The following year, it established a Compensation Commission to enforce Iraqi liability.[43] Under the program, the wrongful occupation of Kuwait, rather than commission of environmental war crimes, comprises the legal basis for Iraqi liability.[44]

The Gulf War did generate significant and protracted discussions over the sufficiency and effectiveness of the current legal paradigm. In June 1991, the combined forces of Greenpeace, the London School of Economics, and the British Centre for Defence Studies met

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> offensive. Third, there were obvious difficulties in demanding Saddam Hussein's arrest as a war criminal . . . . Fourth, there was nervousness in Washington, London, and other Coalition capitals about pressing any proposal for trials if opinion in countries in the region did not want to go down this road. Fifth, there was a question as to whether Iraqi actions before and after this war, including against Kurds and Marsh Arabs, should also be included. And sixth, in many Coalition capitals there was the hope, publicly expressed from the beginning of the war, that some kind of *coup d'etat* or revolution within Iraq would solve the problem.

Roberts, *supra* note 33, at 256–57. Thus, international non-pursuit of Iraqi war crimes may not have been so much the result of a systemic failure of the law's enforcement mechanisms, as much as the end-product of a unique, case-specific series of complex military, political, and practical calculations. The question of the adequacy of existing law on environmental protection or its enforcement mechanisms simply did not reach the surface in any practical outworking. Such a resolution was foreclosed by the flow of events.

42. In Resolution 674 of October 1990, the Security Council stated that "under international law [Iraq] is liable for any loss, damage or injury arising in regard to Kuwait and third States, and their nationals and corporations, as a result of the invasion and illegal occupation of Kuwait." S.C. Res. 674, U.N. SCOR, 45th Sess., 2951st mtg., ¶ 8, U.N. Doc. S/RES/674 (1990), *reprinted in* 29 I.L.M. 1560, 1563. Then, in March 1991, the Security Council demanded that Iraq "[a]ccept in principle its liability under international law for any loss, damage, or injury" resulting from the Kuwait occupation. S.C. Res. 686, U.N. SCOR, 46th Sess., 2978th mtg., ¶ 2(b), U.N. Doc. S/RES/686 (1991), *reprinted in* 30 I.L.M. 567, 569. Iraqi liability was reaffirmed in the cease-fire resolution, which also urged the creation of organizations that could handle claims arising out of the occupation. *See* S.C. Res. 687, *supra* note 39, ¶¶ 16–19. Payment would be funded by the capitalization of an Iraqi oil export levy. *See id*.

43. The Commission was established that year and has been active ever since. *See* S.C. Res. 692, U.N. SCOR, 46th Sess., 2987th mtg., U.N. Doc. S/RES/692 (1991), *reprinted in* 30 I.L.M. 864. For discussions of the Commission, see Ronald J. Bettauer, *The United Nations Compensation Commission — Developments Since October 1992,* 89 AM. J. INT'L L. 416 (1995); John R. Crook, *The United Nations Compensation Commission — A New Structure to Enforce State Responsibility,* 87 AM. J. INT'L L. 144 (1993). For current information on the activities of the Commission, see the United Nations Compensation Commission's home page at <http://www.unog.ch/uncc>.

44. *See* Crook, *supra* note 43, at 147.

to consider the prospects for a "Fifth Geneva Convention on the Environment."[45] In succeeding years, similar conferences convened under the auspices of organizations as varied as the Canadian government,[46] the International Council of Environmental Law in cooperation with the Commission on Environmental Law of the International Union for the Conservation of Nature and Natural Resources,[47] the United Nations,[48] and the United States Naval War College.[49]

At the risk of oversimplifying the diversity of positions in the debate, the predominant opinion seems to be that the present law suffices, in other words, that it reflects the global community's values and serves its aspirations.[50] Proponents of this position ar

45. The draft was prepared by Professor Glen Plant of the London School of Economics. *See* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR (Glen Plant ed., 1992) (containing Conference proceedings and the draft Convention). This was not the first such proposal to follow traumatic environmental effects during armed conflict. Professor Richard Falk proffered a Convention on Ecocide which was adopted by the Emergency Conference Against Environmental Warfare in Indochina, held in 1972 in Stockholm. *See* Richard A. Falk, *Environmental Warfare and Ecocide — Facts, Appraisal, and Proposals,* 4 BULL. PEACE PROPOSALS 80, app. I at 93–95 (1973).

46. *See* Hans-Peter Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 AM. J. INT'L L. 637, 639 (1995).

47. This December 1991 conference is known as the Munich Conference. *See International Council of Environmental Law, Law Concerning the Protection of the Environment in Times of Armed Conflict*, Final Report of Consultation of Dec. 13–15, 1991.

48. *See* United Nations Conference on the Environment and Development (UNCED), Rio Declaration on Environment and Development, princ. 24, U.N. Doc. A/CONF.151/ REV. 1 (1992), *reprinted in* 31 I.L.M. 874, 880 [hereinafter Rio Conference]. This conference issued what has become known as the Rio Declaration, one provision of which addressed environmental harm caused by armed conflict: "Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary." *Id*.

49. The conference proceedings are published in PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24.

50. Throughout the same time period, the Sixth (Legal) Committee of the U.N. General Assembly and the International Committee of the Red Cross (ICRC) were studying the topic. Both subsequently issued reports. On the activities of the Sixth Committee, see *United Nations Decade of International Law: Report of the Secretary-General on the Protection of the Environment in Times of Armed Conflict*, U.N. GAOR, 6th Comm., 48th Sess., Provisional Agenda Item 144, U.N. Doc. A/48/269 (1993) [hereinafter *Report of the Secretary General*, Protection]. The activities of the Sixth Committee are also reported in the various Summary Records of Meeting, U.N. Docs. A/C.6/47/SR.8 (1992). The United States and Jordan submitted a joint memorandum of law for the Committee's consideration which provided a useful catalogue of relevant customary and conventional law. *See Protection of the Environment in Times of Armed Conflict, Letter from the*

gue that the international community's interests will be best served by shoring up the gaps in application and enforcement mechanisms.[51] Was not the Iraqi case just the proof necessary to prove the proposition? Given the extent and tenor of Iraqi excesses, and the unequivocal status of ignominy Iraq held by the end of the war, it was not difficult to attain consensus on the need for bringing Saddam Hussein and his cohorts to justice — on whatever grounds came to hand. "Offenses against the environment" seemed as good a characterization as any other. Hague law, Geneva law,[52] customary law, and, to a more limited extent, Additional Protocol I, all appeared to offer ample reasons to substantiate the foreordained determination that war crimes had been committed. Yet, the culprits largely escaped punishment.

In fact, the Iraqi case was an unfitting crucible in which to test the adequacy and effectiveness of the existing legal framework. Its unsatisfying resolution, at least in part, reflected restraints imposed by the complex political milieu out of which such issues arise in the international arena. The visceral conclusion that identifies "enforcement" as lacking whenever the mechanisms of international law

Permanent Minister of the Hashemite Kingdom of Jordan and of the United States of America to the Chairman of the Sixth Committee (Sept. 28, 1992), U.N. GAOR 6th Comm., 47th Sess., Agenda Item 136, U.N. Doc. A/C.6/47/3 (1992). The ICRC "Guidelines" are printed in U.N. GAOR, 49th Sess., Annex, Agenda Item 139, at 49–53. *See also* Gasser, *supra* note 46, at 641–43.

51. *See Report of the Secretary General*, Protection, *supra* note 50, ¶ 40; *see also, e.g.*, Dieter Fleck, *Protection of the Environment During Armed Conflict and Other Military Operations: The Way Ahead, in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 532 ("[W]e should resist the normal inclination of law makers to embrace discussions of rights rather than to confront sticky, practical, and, indeed, often seemingly intractable questions embedded in issues of compliance and remedies."); John H. McNeill, *Protection of the Environment in Time of Armed Conflict: Environmental Protection in Military Practice, in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 542 ("[T]he existing legal regime is adequate in concept, and adequate in terms of its infrastructure. What is lacking is, of course, execution."); John Norton Moore, *Concluding Remarks, in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 629, 632 ("I am going to simply say that the real problem in enhancing the rule of law in this area is `compliance!'").

52. The designation "Geneva Law" refers to that portion of the law of armed conflict addressing protected classes of persons: civilians, prisoners of war, the sick or shipwrecked, and medical personnel. It is distinguished from "Hague Law," which governs methods and means of combat, occupation, and neutrality. For a discussion of the international instruments which fall into each category, and of those which display elements of both, see FREDERIC DE MULINEN, HANDBOOK ON THE LAW OF WAR FOR ARMED FORCES 3–4 (1987).

seem to break down is tempting, but simplistic. Calculations of *real-politik* almost inevitably enter the picture because so much of the law's efficacy depends on the consensus and mutual understanding of nations in their customary interactions. Moreover, the Gulf War was an atypical conflict from which it is risky to draw definite conclusions about the application of specific prescriptive norms to concrete situations. It is in the more ambiguous case, where a potential defendant nation has *not* effectively relegated itself to international pariah status by its actions, and where no obvious predisposition exists to assess liability on any terms whatsoever, that the true viability of the substantive legal regime must be tested and measured.

II. CURRENT LEGAL FRAMEWORK

A. Environment-Specific Treaty Law

As previously discussed, the Vietnam War largely provided the stimulus for the production of two agreements drafted with the specific intent of protecting the environment during hostilities: Additional Protocol I and ENMOD.[53] The former contains only two provisions explicitly addressing the subject of environmental protection — Articles 35(3) and 55(1).[54]

> ARTICLE 35. Basic rules.
> 1. In any armed conflict, the right of the Parties to the conflict to choose methods and means of warfare is not unlimited.
> 2. It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.
> 3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.[55]
>
> . . . .
>
> ARTICLE 55. Protection of the natural environment.
> 1. Care shall be taken in warfare to protect the natural environ-

53. *See infra* notes 66–74 and accompanying text.

54. *See* Additional Protocol I, *supra* note 12, art. 35, ¶ 3 & art. 55, ¶ 1, *reprinted in* 16 I.L.M. 1408–09, 1415.

55. *Id*. art. 35, *reprinted in* 16 I.L.M. 1408–09.

> ment against widespread, long-term and severe damage. This protection includes a prohibition of the use of 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.
> 2. Attacks against the natural environment by way of reprisals are prohibited.[56]

Placed side by side, the two articles appear to significantly overlap. The "care" in Article 55 to be "taken in warfare to protect the natural environment" by proscribing damage that is "widespread, long-term and severe," would seem to be largely subsumed by the strict limits on methods and means of warfare in Article 35(3).[57] However, differentiation between the two provisions is possible.

Application of both articles requires analysis along a continuum. As noted in the U.S. Army's *Operational Law Handbook,*

> [t]he primary difference between [Additional Protocol I] and the protections found with the [Hague Regulations] or the [Geneva Conventions] is that once the degree of damage to the environment reaches a certain level, [Additional Protocol I] does not employ the traditional balancing of military necessity against the quantum of expected destruction. Instead, it establishes this level as an absolute ceiling of permissible destruction.[58]

When environmental damage reaches a particular point along the continuum — the threshold of "widespread, long-term and severe" — it violates Article 35(3) and the activity causing it must cease.[59] No other considerations, such as the military advantage offered by the prohibited act, the possibility that alternative operations will result in greater incidental injury to civilians or collateral damage to civilian property, or the overall impact of the action in context, can trump the principle of environmental protection. This is a radical development. Whether it constitutes "progress" should be a serious

56. *Id.* art. 55, *reprinted in* 16 I.L.M. 1415.
57. *Compare id*. art. 55, ¶ 1, *with id*. art. 35, ¶ 3 (noting an overlap in the terminology used).
58. JUDGE ADVOCATE GENERAL'S SCHOOL, OPERATIONAL LAW HANDBOOK 14–18 (1998 ed.) [hereinafter OPERATIONAL LAW HANDBOOK].
59. *See id*.

matter for debate.

Article 55 appends an additional factor to the analysis by requiring that the environmental damage in question threaten "the health or survival of the population" before being prohibited.[60] Thus, within the same document the threshold represented by the words "widespread, long-lasting and severe" sets two standards: First, Article 35(3) defines that limit in terms of pure environmental protection, without regard to any other consideration;[61] second, Article 55 brings back such "other considerations" in the form of humanity, thereby articulating a prescriptive standard measured by impact on human beings.[62] Some have urged that Article 35(3) merely reiterates the Article 55 prohibition, or vice versa, rather than setting a different standard.[63] If this were so, the fact that there is nothing in the text of the document to distinguish which provision defines the standard, and which constitutes a mere reiteration, would prove problematic. A review of the negotiating record suggests that this ambiguous approach was intended to satisfy two competing camps, those who advocated the "intrinsic value" approach of Article 35(3), and their opponents who advocated framing restrictions in human terms.[64] Whatever the case, this ambiguity is ripe for potential confusion and interpretive variance.[65]

60. Additional Protocol I, *supra* note 12, art. 55, *reprinted in* 16 I.L.M. at 1415.

61. *See id*. art. 35, ¶ 3, *reprinted in* 16 I.L.M. at 1409.

62. *See id*. art. 55, *reprinted in* 16 I.L.M. at 1415.

63. The United Kingdom, for instance. *See* 6 OFFICIAL RECORDS OF THE DIPLOMATIC CONFERENCE ON THE REAFFIRMATION AND DEVELOPMENT OF INTERNATIONAL HUMANITARIAN LAW APPLICABLE IN ARMED CONFLICTS 118 [hereinafter REAFFIRMATION AND DEVELOPMENT].

64. The working group which handled the topic of the environment at the Diplomatic Conference, "BIOTOPE," recommended both types of articles. *See, e.g.*, 15 REAFFIRMATION AND DEVELOPMENT, *supra* note 63, at 220, 358–59.

65. By December 1998, there were 151 parties to Additional Protocol I, including many potential Coalition partners of the United States. The most recent ratifications occurred in January 1998 (the United Kingdom) and July 1998 (Venezuela). The United States, Iraq, and Iran are among notable non-Parties. Parties are listed at the ICRC documents Web site, *International Humanitarian Law* (visited June 14, 1999) <http:// www.-icrc.org/ihl.nsf/WebNORM?OpenView&Start=30&Count=30&Expand=52.1#52.1>. Although not ratified by certain states, many of the provisions of Additional Protocol I (but not the environmental provisions) are considered declaratory of customary international law. For a non-official, but generally recognized, authoritative discussion of those considered declaratory, see Michael J. Matheson, *Session One: The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions,* 2 AM. U. J. INT'L L. & POL'Y 419, 422–29 (1987); *see also* INTERNATIONAL &

Although an environmentally specific treaty in its entirety, the second of the instruments, the 1977 ENMOD Convention, merely limits the *use* or *modification* of the environment as a *tool* or *weapon* of warfare.[66] Concerns regarding environmental damage *per se* are largely absent.[67] Article I of the agreement summarizes this objective:

> ARTICLE I.
> 1. Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.
> 2. Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article.[68]

ENMOD was largely responsive to the environmental modification techniques employed by the United States during the Vietnam conflict. Specifically, it targets any "technique for changing — through the deliberate manipulation of natural processes — the dynamics, composition or structure of the earth, including its biota, lithosphere, hydrosphere, and atmosphere, or of outer space."[69] Un-

OPERATIONAL LAW DIV. U.S. DEP'T OF THE AIR FORCE, OPERATIONS LAW DEPLOYMENT DESKBOOK tab 12 [hereinafter OPERATIONS LAW DEPLOYMENT DESKBOOK] (summarizing Additional Protocol I and the U.S. position thereon); Abraham D. Sofaer, *Agora: The U.S. Decisions Not to Ratify Protocol I to the Geneva Conventions on the Protection of War Victims,* 82 AM. J. INT'L L. 784, 785–87 (1988).

66. *See* ENMOD, *supra* note 29, 1108 U.N.T.S. 152–55, *reprinted in* 16 I.L.M. at 88–94. Parties to ENMOD are listed in the U.N. Treaty Database at <http://www.un.org/Depts/Treaty> (visited Mar. 5, 1999). As of December 11, 1998, 64 States had ratified ENMOD, including the United States, Russia, and the United Kingdom. *See id*. France and China are not Parties. *See id*. Note that Iraq, Iran, and Syria are signatories, but have not ratified ENMOD. *See id*. As signatories, such states are obligated to do nothing inconsistent with the terms of the Convention until they have expressed an intent not to ratify it. *See* Vienna Convention on the Law of Treaties, *opened for signature* May 23, 1969, art. 18, 1155 U.N.T.S. 331, *reprinted in* 8 I.L.M. 679, 686.

67. *See generally* ENMOD, *supra* note 29, 1108 U.N.T.S. at 152–55, *reprinted in* 16 I.L.M. at 88–94 (noting no specific mention of environmental damage).

68. *Id*. art. I, 1108 U.N.T.S. at 153, *reprinted in* 16 I.L.M. at 91.

69. *Id.* art. II, 1108 U.N.T.S. at 153, *reprinted in* 16 I.L.M. at 91. A non-exhaustive list of examples includes earthquakes, tsunamis, an upset in a region's ecological balance, changes in weather patterns, changes in climate patterns, changes in the state of the ozone layer, and changes in the state of the ionosphere. *See Understanding Relating*

like Additional Protocol I, the normative parameters — widespread, long-lasting or severe effects — are assessed without regard to whether the environment is the object of damage or destruction.[70] Moreover, note that while Additional Protocol I explicates the standard using the conjunctive "and," ENMOD is framed with the disjunctive "or."[71] As a result, the provisions of Additional Protocol I activate only when all three criteria are met; whereas ENMOD draws much tighter restrictions by simply requiring effects that meet any one of the three.

Potential confusion between the ENMOD and Protocol I standards also results from statutory construction of the terms "widespread," "long-lasting," and "severe."[72] With regard to ENMOD, the Conference of the Committee on Disarmament, meeting in Geneva, produced the following definitions:

> It is the understanding of the Committee that, for the purposes of this convention, the terms "widespread", "long-lasting" and "severe" shall be interpreted as follows:
>
> a) "widespread": encompassing an area on the scale of several hundred square kilometers;
>
> b) "long-lasting": lasting for a period of months, or approximately a season;
>
> c) "severe": involving serious or significant disruption or harm to human life, natural and economic resources or other assets.
>
> It is further understood that the interpretation set forth above is intended exclusively for this Convention and is not intended to prejudice the interpretation of the same or similar terms if used in connection with any other international

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to Article II, Report of the Conference of the Committee on Disarmament, U.N. GAOR, 31st Sess., Supp. No. 27, at 91–92, U.N. Doc. A/31/27 (1976), *reprinted in* THE LAWS OF ARMED CONFLICTS 168 (Dietrich Schindler & Jiri Toman eds., 1988).

70. *See* ENMOD, *supra* note 29, 1108 U.N.T.S. at 153, *reprinted in* 16 I.L.M. at 91 (concerning "damage or injury to any other State Party").

71. *Compare* Additional Protocol I, *supra* note 12, art. 16, ¶ 3, *reprinted in* 16 I.L.M. at 1409 (stating "long-term and severe damage"), *with* ENMOD, *supra* note 29, art. I, 1108 U.N.T.S. at 153, *reprinted in* 16 I.L.M. at 91.

72. *See* Howard S. Levie, *The 1977 Protocol I and the United States*, 38 ST. LOUIS U. L.J. 469, 477–79 (1993–94) (comparing the identical wording of both Additional Protocol I, article 35, paragraph 3, and ENMOD and discussing the different meanings attached to each phrase).

agreement.[73]

By contrast, the *travaux preparatoires* for Additional Protocol I provide little guidance on the meaning of the terms aside from reference by some delegates to "long-term as a period measured in decades."[74] This lack of clarity, in part, forms the basis for U.S. and other objections to the treaty.[75]

Various entities have stepped in to fill the definitional void of Additional Protocol I, attempts which fall far short of any international consensus. The German Law of War Manual paraphrases the requirement, defining the requisite limit on damage as "a major interference with human life or natural resources which considerably exceeds the battlefield damage to be regularly expected in a war."[76] The *Operational Law Handbook* suggests the term "longstanding" be understood in terms of decades, "severe" by referring to Article 55's reference to acts that "prejudice the health or survival of the population," and "widespread" as extending across "several hundred square kilometers."[77] Clearly, the problems attendant upon attempts at a uniform application of these provisions are manifest.

B. General Treaty Law

The foregoing discussion of Additional Protocol I and ENMOD exhausts the full gamut of environment-specific treaty law applicable in international armed conflict.[78] However, a series of general provisions found throughout numerous international instruments, particularly 1907 Hague IV Treaty, 1949 Fourth Geneva Convention, and Additional Protocol I, partially remedies the apparent

73. *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques: Hearing Before Senate Comm. on Foreign Relations*, 95th Cong. 2d Sess. (1978).

74. 15 REAFFIRMATION AND DEVELOPMENT, *supra* note 63, at 268.

75. *See* DOCUMENTS ON THE LAW OF WAR 461–63 (Adam Roberts & Richard Guelff eds., 1982) [hereinafter DOCUMENTS] (reporting reservations to Additional Protocol I).

76. FEDERAL MINISTRY OF DEFENSE (GERMANY), HUMANITARIAN LAW IN ARMED CONFLICTS: MANUAL (1992); *see also* THE HANDBOOK OF HUMANITARIAN LAW IN ARMED CONFLICT (Dieter Fleck trans., Oxford University Press 1995).

77. OPERATIONAL LAW HANDBOOK, *supra* note 58, at 14–18, 14–19.

78. For a further discussion of Environment Specific Law, see Anthony Liebler, *Deliberate Wartime Environmental Damage: New Challenges for International Law*, 23 CAL. W. INT'L L.J. 67, 109–10 (1992).

dearth.[79] Although the legal restraints contained in these agreements focus primarily on the humanitarian protection of civilians and civilian property, they also enhance, in consequential ways, the legal basis for the protection of the environment.[80]

The Fourth Hague Convention opens by stressing the need "to diminish the evils of war, as far as military requirements permit."[81] A well-known preambular statement, the de Martens Clause (repeated in Additional Protocol I[82]), follows:

> Until a more complete code of the laws of war has been issued, the high Contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the laws of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and from the dictates of public conscience.[83]

By this standard, whenever the law fails to provide specific protection to the environment, "the usages established among civilized peoples,"[84] the "laws of humanity"[85] and "dictates of public conscience"[86] fill the lacuna. Nonetheless, variations in competing valuation paradigms will operate to greatly reduce the influence accorded to provisions such as the de Martens Clause.[87]

Two other Hague IV provisions are relevant to safeguarding the environment during hostilities. Article 23(g) has the widest scope:

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79. While not specifically addressing the environment, certain provisions under these instruments have been applied to the protection of the environment.

80. *See* 2 U.S. DEP'T OF THE ARMY, PAMPHLET NO. 27-161-2, INTERNATIONAL LAW 174–75 (1962) [hereinafter INTERNATIONAL LAW].

81. Convention Respecting the Laws and Customs of War on Land, Annexed Regulations, pmbl., Oct. 18, 1907, 36 Stat. 2277, 2279 [hereinafter Hague IV].

82. *See* Additional Protocol I, *supra* note 12, art. 1, ¶ 2, *reprinted in* 16 I.L.M. at 1396–97.

83. Hague IV, *supra* note 81, pmbl., 36 Stat. at 2279–80. A de Martens Clause is also contained in Article 22 of Hague IV. *See id*. at 2301. The principle is generally considered to be customary international law. *See* Christopher Greenwood, *Historical Development and Legal Basis*, *in* THE HUMANITARIAN LAW IN ARMED CONFLICTS 28–29 (Dieter Fleck ed., 1995). The clause is named after the Russian delegate who proposed it at the 1899 Hague Conference. *See id*. at 28.

84. Hague IV, *supra* note 81, at 2301.

85. *Id*.

86. *Id*.

87. See *infra* notes 166–90 and accompanying text on proportionality.

"[I]t is especially forbidden . . . [t]o destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war."[88] The provision essentially codifies the general principle of military necessity.[89] During the Nuremberg trials, the Article provided the basis for charges against German administrators for the unnecessary destruction of Polish timber resources.[90] Nearly a half decade later, many commentators turned to it again to argue that Iraqi environmental destruction during the Gulf War amounted to war crimes.[91] However, in the context of environmental protection, should the notion of "property" extend to the environment? Are natural resources property? Are the atmosphere or the littoral seas? Considerable uncertainty still pervades this perplexing, yet basic, definitional issue.

Article 55 of Hague IV also potentially bears on protection of the environment.[92] It states that "[t]he occupying State shall be regarded only as administrator and usufructuary of public buildings, real estate, forests, and agricultural estates belonging to the hostile State, and situated in the occupied country. It must safeguard the capital of these properties, and administer them in accordance with the rules of usufruct."[93] Thus, belligerents who occupy enemy territory must safeguard property within the occupied state, including real estate, forests, and agricultural estates, in accordance with the rules of usufruct.[94] This means an occupying power may reasonably exploit natural resources in occupied territory, but may not waste,

88. Hague IV, *supra* note 81, art. 23(g), 36 Stat. at 2302. For an argument that the Iraqi actions violated this provision of Hague IV, see Michael Bothe, *Environmental Destruction as a Method of Warfare: Do We Need New Law?,* 15 DISARMAMENT 101, 104 (1992). Some contend that this provision is applicable only to state property but this notion is generally rejected. *See, e.g.*, 2 INTERNATIONAL LAW, *supra* note 80, at 174 (discussing both Article 23(g) of Hague IV and Article 53 of the Geneva Civilian Convention of 1949); INTERNATIONAL COMM. OF THE RED CROSS, COMMENTARY: GENEVA CONVENTION RELATIVE TO THE PROTECTION OF CIVILIAN PERSONS IN TIME OF WAR 301 (Jean S. Pictet ed., 1958) [hereinafter RED CROSS COMMENTARY] (analyzing the Geneva Convention of 1949).

89. *See generally* Stefan Oeter, *Methods and Means of Combat, in* THE HUMANITARIAN LAW IN ARMED CONFLICTS 105, 105–11 (Dieter Fleck ed., 1995).

90. *See* Liebler, *supra* note 78, at 106 (citing United Nations War Crimes Commission, Case No. 7150 469 (1948)).

91. *See* GULF WAR REPORT, *supra* note 35, at 623–24.

92. *See* Hague IV, *supra* note 81, art. 55, 36 Stat. at 2309.

93. *Id*.

94. *See id*.

destroy, or permanently alter them.[95] The Department of Defense report on the Gulf War included an allegation that Iraq, in the damage it inflicted in the occupied territory of Kuwait, violated its usufructory obligations.[96] Note that Article 55 is somewhat limited in its application, for it only takes effect once hostile activities conclude and the area in question has been occupied.[97]

Within the extensive body of "Geneva Law," the most significant source of potential protection for the environment can be found in the last of the four 1949 Geneva Conventions. Article 53 of Geneva Convention IV states:

> ARTICLE 53. Prohibited Destruction.
> Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or co-operative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military operations.[98]

Paralleling Hague IV's Article 55, the provision extends only to occupiers in occupied territories.[99] Nevertheless, the Article does possess normative import because environmental destruction often characterizes enemy military occupation.[100] For instance, the destruction of Kuwaiti oil wells by Iraqi forces was deemed by many to constitute a violation of the Article 53 proscriptions.[101]

The Article is also noteworthy in that it dovetails neatly with Article 147 of Geneva IV, which includes as "grave breaches" the "extensive destruction . . . of property, not justified by military ne-

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95. *See* RED CROSS COMMENTARY, *supra* note 88, at 301.

96. *See* GULF WAR REPORT, *supra* note 35, at 623–24.

97. *See* Hague IV, *supra* note 81, art. 55, 36 Stat. at 2309.

98. Geneva Convention Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, art. 53, 6 U.S.T. 3516, 3552, 75 U.N.T.S. 287, 322 [hereinafter Geneva IV].

99. *See id*. As a codification of the principle of military necessity, it also resembles Article 23(g) of Hague IV. *See* Hague IV, *supra* note 81, at 23(g), 36 Stat. at 2302.

100. *See infra* note 101 and accompanying text.

101. *See, e.g.*, GULF WAR REPORT, *supra* note 35, at 623–24; McNeill, *supra* note 51, at 540; Roberts, *supra* note 33, at 250. For example, the Commission for International Due Process of Law alleged a violation in the draft indictment of Saddam Hussein prepared for the U.N. Secretary General. *See* Luis Kutner & Ved P. Nanda, *Draft Indictment of Saddam Hussein*, 20 DENV. J. INT'L L. & POL'Y 91, 93 (1991).

cessity and carried out unlawfully and wantonly."[102] Grave breaches trigger the requirement incumbent upon all Parties to the Convention to seek out offenders and either bring them before their own courts or transfer them to the custody of another Party.[103] Significant potential for heightening deterrence of environmental damage resides in this well-defined sanctions mechanism.

In addition to its two environment specific provisions, Additional Protocol I contains a number of general articles that extend additional environmental protection. Articles 35(1) and (2), circumscribe, respectively, the rights of the parties to choose methods or means of warfare or engage in actions causing unnecessary suffering,[104] while Article 51 proscribes indiscriminate attacks.[105] Of particular importance is Article 54(2), safeguarding objects deemed "indispensable to the survival of the civilian population."[106]

> ARTICLE 54. Protection of objects indispensable to the survival of the civilian population . . . .
> 2. It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as food-stuffs, agricultural areas for the production of food-stuffs, 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, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.[107]

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102. Geneva IV, *supra* note 98, art. 147, 6 U.S.T. at 3618, 75 U.N.T.S. at 388. There is relative concurrence that the Iraqi actions constituted grave breaches. *See* GULF WAR REPORT, *supra* note 35, at 624; Bothe, *supra* note 88, at 104; McNeill, *supra* note 51, at 540; Roberts, *supra* note 33, at 250.

103. *See* Geneva IV, *supra* note 98, art. 146, 6 U.S.T. at 3616, 75 U.N.T.S. at 387.

104. *See* Additional Protocol I, *supra* note 12, art. 35, ¶¶ 1–2, *reprinted in* 16 I.L.M. at 1408–09.

105. *See id*. art. 51, ¶ 4, *reprinted in* 16 I.L.M. at 1413. Article 51(4) reads,

> Indiscriminate attacks are: (a) those which are not directed at a specific military objective; (b) those which employ a method or means of combat which cannot be directed at a specific military objective; or (c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol . . . .

Id.

106. *Id*. art. 54, ¶ 2, *reprinted in* 16 I.L.M. at 1414.

107. *Id.*

The specified examples illustrate the truism that the environment often provides the objects indispensable to human survival.[108] Subparagraph 2 outlaws the targeting of such objects even if their destruction, etc., would yield military advantage.[109] This Article operates to enjoin scorched-earth tactics, such as those practiced during the Second World War.[110]

One controversial provision of Additional Protocol I, Article 56, portends notable environmental consequences. It concerns works and installations containing dangerous forces.

> ARTICLE 56. Protection of works and installations containing dangerous forces.
> 1. Works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Other military objectives located at or in the vicinity of these works or installations shall not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.[111]

While the United States opposes the provision on grounds unrelated

108. *See id*.

109. *See id*. Paragraph 3 of Article 54 provides an exception to the prohibition if the covered objects are used as sustenance *solely* for the members of the armed forces or in direct support of military actions. *See id*. art. 54, ¶ 3, *reprinted in* 16 I.L.M. at 1414.

110. *See* Schmitt, *supra* note 25, at 77. Wrongful intent remains an element that must be proven. In one well-known case (related primarily to the customary international law principle of necessity discussed *infra* notes 165–201), German General Rendulic was acquitted on charges of "scorched earth" destruction he ordered to be committed during the German evacuation of Norway. *See* The Hostage Case (U.S. v. List), 11 T.W.C. 759 (1950). The basis for the acquittal was his reasonable, but mistaken, belief that the destruction was necessary because Soviet forces were chasing him. *See id*. In fact, they were not. *See id*. Another significant exception covers the case in which a state conducts scorched earth operations on its own territory to deny an invading force sustenance, as the Soviets did in the Second World War. *See* Additional Protocol I, *supra* note 12, art. 54, ¶ 5, *reprinted in* 16 I.L.M. at 1414; High Command (U.S. v. Von Leeb), 11 T.W.C. 462 (1950) (involving destruction in the Soviet Union).

111. Additional Protocol I, *supra* note 12, art. 56, ¶ 1, *reprinted in* 16 I.L.M. at 1415.

to the environment,[112] it does provide a high degree of protection to the *enumerated* "works and installations."[113] Contrary to the assertions of some, the release of oil does not amount to the release of a dangerous force such as to invoke the Article's protections.[114] Moreover, Article 56 does not provide complete immunity from attack.[115] Dams and dikes used for other than their intended purposes and in regular, significant, and direct support of enemy military operations may be attacked if doing so is the only way to halt such use.[116] Nuclear electrical generating stations may be attacked in the same circumstances even if they are being used for their intended function.[117] Despite the exemptions from its reach, Article 56 undoubtedly enhances the overall protection of the environment.

Probably the most significant environmental protections in Additional Protocol I are located in Articles 52, 51(5)(b), and 57(2)(a)(iii). Article 52 confines acceptable targets to "strictly to military objectives,"[118] thereby immunizing civilian objects from being the "object of attack or of reprisals."[119] The Protocol broadly defines "[c]ivilian objects" as "all objects which are not military objectives."[120] Military objectives are "those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage."[121] The term "[c]ivilian object" could reasonably be interpreted to include all elements of the environment, which, in the relevant times and circumstances, do not constitute a clear,

112. *See* OPERATIONS LAW DEPLOYMENT DESKBOOK, *supra* note 65, tab 12.

113. *Id*.

114. This is clear from the negotiating record of the Convention. *See* 15 REAFFIRMATION AND DEVELOPMENT 326, *supra* note 63; *see also* MICHAEL BOTHE ET AL., NEW RULES FOR VICTIMS OF ARMED CONFLICTS 352 (1982). Nevertheless, Greenpeace has asserted that "[i]t is unclear whether oil wells constitute installations containing `dangerous forces.' The examples given in Protocol I . . . are not meant to be exhaustive, and a liberal construction could say that the release of the force of the oil fires and spills are covered." ARKIN ET AL., *supra* note 35, at 140.

115. *See* Additional Protocol I, *supra* note 12, art. 56, *reprinted in* 16 I.L.M. at 1415.

116. *See id*.

117. *See id*. art. 56, ¶ 2(b), *reprinted in* 16 I.L.M. at 1415.

118. *Id*. art. 52, ¶ 2, *reprinted in* 16 I.L.M. at 1414.

119. *Id.* art. 52, ¶ 1, *reprinted in* 16 I.L.M. at 1414.

120. *Id.*

121. Additional Protocol I, *supra* note 12, art. 52, ¶ 2, *reprinted in* 16 I.L.M. at 1414.

well-defined *military* objective or advantage.[122]

Articles 51(5)(b) and 57(2)(a)(iii) codify the customary law principle of proportionality.[123] They provide:

> ARTICLE 51. Protection of the civilian population.
> 5. Among others, the following types of attacks are to be considered as indiscriminate: . . . (b) an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.[124]

> ARTICLE 57. Precautions in attack.
> 2. With respect to attacks, the following precautions shall be taken:
> (a) those who plan or decide upon an attack shall: . . .
> (iii) refrain from deciding to launch any attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive to the concrete and direct military advantage anticipated . . . .[125]

By these standards, commanders must be able to articulate a concrete and direct military advantage that clearly outweighs likely collateral damage to civilian objects or incidental injury to civilians before launching an attack.[126] This balancing test often includes environmental elements as factors to be weighed along with other civilian objects.[127] The principle as codified is weakened by the same difficulties, discussed *infra,* attendant upon its customary counterpart.[128]

While the aforementioned provisions represent the most rele-

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122. *See generally id*. art. 52, *reprinted in* 16 I.L.M. at 1414.

123. For an excellent analysis of proportionality in the context of Additional Protocol I, see Lieutenant Colonel William J. Fenrick, *The Rule of Proportionality and Protocol I in Conventional Warfare,* 98 MIL. L. REV. 91 (1982). *See also* Oeter, *supra* note 89, at 177–86; *infra* notes 166–73 and accompanying text.

124. Additional Protocol I, *supra* note 12, art. 51, ¶ 5(b), *reprinted in* 16 I.L.M. at 1413.

125. *Id.* art. 57, ¶ 2(a)(iii), *reprinted in* 16 I.L.M. at 1416.

126. *Compare id*. art. 51, ¶ 5(b), *with id*. art. 57, ¶ 2(a)(iii), *reprinted in* 16 I.L.M. at 1413, 1416.

127. *See* Additional Protocol I, *supra* note 12, art. 57, ¶ 2(a)(iii), *reprinted in* 16 I.L.M. at 1416.

128. *See* discussion *infra* Part III.

vant law of armed conflict rules protecting the environment, scattered throughout other instruments are meaningful limitations on specific methods and means of warfare that could cause environmental damage. Treaties such as the Gas Protocol,[129] Biological Weapons Convention,[130] Chemical Weapons Convention,[131] and Conventional Weapons Convention[132] in the right circumstances, supply significant protection to the environment.[133] When considered as a whole, however, the body of conventional law fails to provide an unambiguous, cohesive approach to the international problem of wartime environmental destruction.

C. Customary International Law

129. *See* Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, 26 U.S.T. 571, *reprinted in* 14 I.L.M. 49 (1975). The Gas Protocol entered into force for the United States in 1975. *See id*.

130. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, Apr. 10, 1972, 26 U.S.T. 583, *reprinted in* 11 I.L.M. 310. The United States ratified this convention in 1975. *See* Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Jan. 13, 1993, 32 I.L.M. 800 [hereinafter Chemical Weapons Convention].

131. Chemical Weapons Convention, *supra* note 130. The United States ratified this convention in 1997.

132. Convention on the Prohibition or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, U.N. Doc. A/CONF. 95/158 (1980), *reprinted in* 19 I.L.M. 1524 [hereinafter Conventional Weapons Convention]. The United States ratified this convention in March 1995, but has not signed or ratified its Protocol on Incendiary Weapons. *See* Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III), U.N. Doc. A/CONF. 95/15 (1980), *reprinted in* 19 I.L.M. 1534. It is interesting that though the Conventional Weapons Convention contains a preambular provision stating that "[i]t is prohibited to employ 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 language has received little specific attention in the environmental context. Conventional Weapons Convention, *supra*, *reprinted in* 19 I.L.M. at 1524. Of particular note is article 2, paragraph 4, of Protocol III of the Conventional Weapons Convention. That provision disallows making "forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives." *Id.* art. 2, ¶ 4, *reprinted in* 19 I.L.M. at 1535.

133. Other conventions that have some environmental effect include the Convention for the Protection of Cultural Property in the Event of Armed Conflict, May 14, 1954, 249 U.N.T.S. 240, and the Convention for the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 1037 U.N.T.S. 151.

The broadest principle in the customary international law of armed conflict is that "[t]he right of belligerents to adopt means of injuring the enemy is not unlimited."[134] Four basic general categories of principles flow from this source: military necessity, discrimination, humanity, and chivalry.[135] Many commentators rely on these to substantiate the premise of the environmental law of armed conflict's prescriptive adequacy. Custom, it is said, remedies any treaty law deficiencies.[136] This Article concentrates on the two most relevant customary principles: military necessity and discrimination. Notwithstanding claims to the contrary, and although significant gaps in treaty law can be bridged by reference to customary principles, serious questions persist as to their practical utility.

1. Military Necessity

In a section of *De Jure Belli ac Pacis* devoted to "Moderation in Devastating a Country" Hugo Grotius quotes favorably from Livy's characterization of Hannibal:

> His spirit, inclined to avarice and cruelty, was prone to despoil what he could not protect. This policy was destructive both in its inception and in its result. For it alienated the minds not only of those who suffered undeserved wrong, but of others also, since more persons were affected by the example than by the disaster.[137]

In this way, Grotius made use of evidence gleaned from ancient history to bolster his contention that "it is usually the case that there are no reasons to warrant laying waste a country, or that there are other stronger reasons against it."[138] Here we find, in the

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134. Hague IV, *supra* note 81, art. 22, 36 Stat. at 2301; *see, e.g.*, Additional Protocol I, *supra* note 12, art. 35, ¶ 1, *reprinted in* 16 I.L.M. at 1408. The principle was first recognized in the St. Petersburg Declaration of 1868, 1 AM. J. INT'L L. 95, 95–96 (1907).

135. Though these principles represent well-defined and agreed upon customs of international law, the form in which they are expressed is subject to considerable variation. This Article adopts the typology of discrimination set forth in Christopher Greenwood, *The Law of Weaponry at the Start of the New Millennium*, *in* THE LAW OF ARMED CONFLICT: INTO THE NEXT MILLENNIUM 185, 199–202 (Michael Schmitt & Leslie Green eds., 1998).

136. *See* Schmitt, *supra* note 25, at 23.

137. GROTIUS, *supra* note 1, ¶ 3, *reprinted in* CLASSICS OF INTERNATIONAL LAW 755–56.

138. *Id*. § 1, at 746.

context of a discussion of the destruction of non-human targets, an argument for the reasoned exercise of restraint in military operations. The illustration qualifies as an early statement of the principle that the degree of military advantage yielded by a military operation influences its normative admissibility; *viz*., military necessity.[139] The principle prohibits destructive or harmful acts unnecessary to secure the complete or partial submission of the enemy. Since the time of Grotius, it has become well-established customary international law that violations of this principle constitute a war crime. In *The Hostage Case*, the U.S. Military Tribunal trying alleged war criminals in the aftermath of the Second World War set forth the principle's parameters in a twentieth century context:

> [Military necessity] does not permit the killing of innocent inhabitants for purposes of revenge or the satisfaction of a lust to kill. The destruction of property to be lawful must be imperatively demanded by the necessities of war. Destruction as an end in itself is a violation of international law. There must be some reasonable connection between the destruction of property and the overcoming of the enemy forces.[140]

Thus, a military actor must justify questionable actions at the level of imperative necessity.[141] Those of only marginal military value fail to meet the standard. For instance, a military action undertaken for the sole purpose of destroying the morale or war resolve of an enemy's civilian population would violate the principle of military necessity. In theory and in practice, this operates contrary to the Nazi notion of *Kriegsraison*, which was based on the premise that the ends justify the means.[142] To use a Gulf War example, the U.S. Department of Defense opined in its official report that Iraqi actions in setting fire to Kuwaiti oil wells failed to evidence a sufficient level of military utility such as to have qualified them as mili-

139. On the general subject of military necessity, see Hilaire McCoubrey, *The Nature of the Modern Doctrine of Military Necessity*, 30 REVUE DE DROIT MILITAIRE ET DE DROIT DE LA GUERRE 216 (1991).

140. *Hostage Case*, 11 T.W.C. at 1253–54.

141. *See* McCoubrey, *supra* note 139, at 237.

142. *See, e.g.*, CHARLES G. FENWICK, INTERNATIONAL LAW 547 (3d ed. 1952). Fenwick states the German theory "reduced the entire body of the laws of war to a code of military convenience." *Id*.

tarily necessary.[143]

Attempts to employ the principle of military necessity in the service of environmental protection run up against two formidable difficulties. Neither is unique to the issue of ensuring environmental protection. First, a considerable hazard exists in interpreting phrases such as "imperatively demanded" and "reasonably connected" because the range of potential meanings casts a wide shadow.[144] Broadly crafted generalized formulations of law are usually of little concrete assistance in the all too common gray area cases. Moreover, the risks of normative imprecision grow when retroactive judgments on reasonableness and necessity are required. An action that seems militarily necessary in the fog and friction of war may well appear in a different light to the post-war evaluator. A further gloss, tinged perhaps with a dose of cynicism, comes with the recognition that the winning side will likely determine the outer limits of the military imperative at the conclusion of hostilities. Consider the probable outcome of a war crimes trial — had the Axis powers prevailed in the Second World War — of those Allied representatives responsible for ordering the bombing of Dresden.

Similar definitional uncertainty surfaces in determining just how "direct" a military advantage must be in order to rise to the level of "necessary."[145] "Directness" depends on myriad factors: time, actor, relative capabilities, etc. It is a wholly contextual concept. Again, in ambiguous cases, the "gray area" at the middle of the spectrum, the sliding scale nature of the analysis leaves ample room for subjective, yet reasonable, differences of opinion to arise.

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143. *See* GULF WAR REPORT, *supra* note 35, at 625–26. The report acknowledged a certain *prima facie* ambiguity, but concluded upon review of the totality of the circumstances that the Iraqi activity was clearly illegal:

> As the first Kuwaiti oil wells were ignited by Iraqi forces, there was public speculation the fires and smoke were intended to impair Coalition forces' ability to conduct both air and ground operations, primarily by obscuring visual and electro optical sensing devices. Review of the Iraqi actions makes it clear the oil well destruction had no military purpose, but was simply punitive destruction at its worst. For example, oil well fires to create obscurants could have been accomplished simply through the opening of valves; instead, Iraqi forces set explosive charges on many wells to ensure the greatest possible destruction and maximum difficulty in stopping each fire.

Id.

144. *See* Schmitt, *supra* note 25, at 52–53.

145. *See id*.

A second major obstacle in making military necessity determinations lies in the requirement that a belligerent's intent be identified. International custom, as summarized in this principle, bars wanton, militarily irrelevant acts of destruction. This means, in effect, that no justifiable intention of securing a military advantage can be said to exist. Thus, the practical application of the principle requires an *ex post facto* determination as to the state of mind of the actor at the time of the incident in question. What was the true intention of Allied commanders who ordered the incineration of the city of Dresden? Did the existence of militarily relevant targets in the form of rail-communications networks on the outskirts of the city obviate any requirement for further examination of the intent of the actors? In cases where intent is subject to multiple possible interpretations, how does one ascertain actual *mens rea*?

One questionable criticism of the necessity principle which merits mention is that it undermines the ostensible goals of the law of armed conflict, especially as applied to the environment. An internationally distinguished commentator has, for example, stated that "[t]he dictates of military necessity, as assessed by opposing leaderships, have taken consistent precedence over the laws of war in almost every critical aspect of belligerent policy."[146] He laments the fact that

> the . . . stress on doing what is necessary to win a given battle in the course of a war almost inevitably produces a climate of opinion that confers virtually unlimited discretion on military commanders in the field. Such leaders continue to be judged and guided back home mainly by calculations relating to achieving victory or avoiding defeat in combat.[147]

The implication seems to be that the "sacred cow" of military necessity actually serves as a shibboleth for commanders to prioritize winning wars above that of protecting the environment. But of course they do. First of all, it would seem to be axiomatic that, in going to war, nations and peoples place other interests

146. RICHARD A. FALK, REVITALIZING INTERNATIONAL LAW 168 (1989).

147. Richard A. Falk, *The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime* (1998) (unpublished manuscript prepared for Environmental Law Institute).

ahead of the environment, whatever those interests may be, and however temporary the displacement. If they did not, there would be no war. After all, in armed conflict, damage to the environment in one form or another—as unpleasant and unplanned as that may be — is virtually inevitable. The consideration of environmental protection during armed conflict will only be taken seriously if viewed in terms of its connectivity to other priorities and concerns.

Perhaps more seriously, this criticism seems to reflect a fundamental misunderstanding of the nature of the principle itself, for it sets up a false dichotomy between military necessity on the one side, and the laws of armed conflict on the other. In fact, the laws of armed conflict *include*, as a critical component, the principle governing military necessity. It is among that body of law's most fundamental elements.

2. Discrimination

Even if a given operation passes the test of military necessity, military personnel must still exercise discrimination in their choice of means and methods for carrying out the mission. The difficulties involved in applying the principle of military necessity pale beside those emanating from application of the principle of discrimination.

On one hand, discrimination sets limits on the use of inherently indiscriminate weapons, those incapable of reliably distinguishing between lawful and unlawful targets.[148] This component of the principle is of *de minimus* relevance to environmental protection because prospects for using the environment as an instrument of warfare, as a weapon, have been severely curtailed by adoption of ENMOD. Additionally, given the extremely limited control over such a "weapon," it is difficult to envision an attack employing the environment that would be capable of complying with the principle of discrimination.

On the other hand, the principle precludes the indiscriminate *use* of any types of weapons.[149] This feature of discrimination con

148. *See* Greenwood, *supra* note 135, at 199. An example of inherently indiscriminate weapons are disease-spreading biological weapons. Once released, biological agents are extremely difficult to detect or control. Such agents draw no distinctions among victims.

149. *See id*. By way of illustration, the International Criminal Tribunal for the for-

sists of three discrete components: distinction, minimizing collateral damage and incidental injury, and proportionality.[150] Each exists as an established principle of international custom, and has been codified in Additional Protocol I.[151] Although some nations, including the United States, have elected not to ratify the Protocol, most generally acknowledge that its provisions on discrimination accurately restate customary international law.[152]

Before discussing each of the three, it is useful to note that an omnipresent quandary in applying the principle of discrimination subsists in the all-encompassing nature of the environment. Generally, when the community of nations determines specific well-defined civilian objects to be immune from attack, such as a hospital, military operations simply remove them from their pool of potential targets. The warfighter may not like the new restriction, but it is executable.[153] This executability derives from the fact that the object or individual occupies a concrete, three-dimensional position in space and time. It is visible, tangible. In contradistinction, when considering the environment *en masse*, clarity quickly disappears. Warfare always occurs in the presence of the environment. Adaptive as it may be to the rule of law and the influence of human will, armed conflict cannot be cut off and removed from an area as amorphous and ubiquitous as the environment. This reality will prove particularly vexing in application of the discrimination standard, for the environment will always be a factor for analysis.

The first of the three components of discrimination, distinction, requires that belligerents refrain from directly targeting protected

mer Yugoslavia has indicted Serbian officials in connection with the firing of cluster bombs into the city of Zagreb, Croatia. *See* G. Anthony Wolusky, *Prosecuting War Crimes in the Former Yugoslavia*, 6 USAFA J. LEGAL STUD. 287, 295 (1995). Use of such weapons, *per se*, does not constitute a LOAC violation. *See id*. However the circumstances in which they are used may render such use illegal. *See id*. What turned the Serb actions into criminal activity was the use of such imprecise weapons in a crowded city where the likelihood of death, injury, and damages to noncombatants was extremely high. *See id*.

150. *See* Greenwood, *supra* note 135, at 199–200.

151. For distinction, see Additional Protocol I, *supra* note 12, art. 51, *reprinted in* 16 I.L.M. at 1413–14. For the requirement to minimize collateral damage, see *id*. art. 57, *reprinted in* 16 I.L.M. at 1415–16. For proportionality, see *id*. arts. 51, 57, *reprinted in* 16 I.L.M. at 1413–16.

152. *See supra* note 65 and accompanying text.

153. *See* Greenwood, *supra* note 135, at 201–02.

persons and objects, especially civilians and civilian objects such as the environment.[154] Unfortunately, subjectivity clouds determinations of what is protected, and what is not. Even with regard to the Additional Protocol I codification, different parties and interests approach the limitations from divergent cognitive vectors, consequently arriving at fundamentally different interpretations.[155] For example, disagreement exists over the status of mission-essential civilians who work in close connection with military combatants.[156] The International Committee of the Red Cross identifies civilians as immune from attack as long as they do not take "a *direct* part in [the] hostilities."[157] This runs contrary to the position of those who would identify such civilians as combatants, and thus, appropriate targets due to their contribution to the military effort.[158]

The second component of the prohibition on indiscriminate use requires belligerents to reduce collateral damage and incidental injury to the greatest possible extent.[159] It does not forbid the causation of such damage and injury, but simply the avoidance of that which is reasonably preventable.[160] For example, Coalition forces bombed a series of bridges over the Euphrates River during the Gulf War.[161] The bridges were fitted with links that served as vital components of the Iraqi military communications system.[162] The fact that the bridges and communications systems served a valid civilian purpose did not grant them immunity from attack.[163] However, the

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154. *See* Additional Protocol I, *supra* note 12, arts. 48 & 51, ¶ 4, *reprinted in* 16 I.L.M. at 1412–13.

155. *See* Liebler, *supra* note 78, at 101–10.

156. *See, e.g.*, Levie, *supra* note 72, at 470 n.6, 473–74 (stating that the United States objected to Additional Protocol I in part because persons such as doctors who assist wounded guerillas in a guerilla war are committing illegal acts).

157. Additional Protocol I, *supra* note 12, art. 51, *reprinted in* 16 I.L.M. at 1413 (emphasis added); ADDITIONAL PROTOCOL I COMMENTARY, *supra* note 18, at 619; *see also* DOCUMENTS, *supra* note 75, at 466.

158. See W. Hays Parks, *Air War and the Law of War,* 32 A.F. L. REV. 1, 113–45 (1990), which includes a citation from a Letter from DAJA-IA to Counselor for Defense Research and Engineering (Economics), Embassy of the Federal Republic of Germany (Jan. 22, 1988), at 134.

159. *See* Additional Protocol I, *supra* note 12, art. 57, *reprinted in* 16 I.L.M. at 1415–16.

160. *See id*.

161. *See* GULF WAR REPORT, *supra* note 35, at 158.

162. *See id*. at 98, 158.

163. *See id*. at 158.

usage pattern of bridges should be considered before attacking them.[164] For example, strikes during periods of high volume civilian traffic will likely violate the discrimination principle if night attacks (period of low use) are feasible.[165]

Finally, discrimination includes the principle of proportionality, codified in Articles 51 and 57 of Additional Protocol I, which prohibits attacks likely to bring about collateral damage or incidental injury disproportionate to the military advantage reasonably anticipated to accrue from the operation.[166] As with distinction, application of the proportionality principle invites subjectivity.[167] How important is a life, a home, or a business? How important is a tank, an aircraft, or success in a particular battle? The rule of proportionality insists that the value of such entities be calculated.[168] It then mandates a balancing of these heterogeneous values: Military advantage must be directly compared against humanitarian concerns.[169] Doing so is a highly challenging, and thoroughly subjective, endeavor. In some cases, the additional consideration of environmental protection may end up tipping the scales in favor of humanitarian concerns.[170] Unfortunately, it will often also generate valuation dissonance — dissonance that severely impedes consistent and predictable operation of the proportionality principle, both in its conventional and customary forms.[171]

Issues of causation and liability will frustrate precision in proportionality assessment. Particularly problematic is the issue of

164. *See id*. at 100.

165. Of course, advances in technology have changed the working dynamics of this principle. Because of the imprecision of contemporary technology, Allied bombing campaigns over central Germany in the late stages of the Second World War would have been allowed a far wider scope for error than would be permissible with the "smart weapons" of the current day.

166. On the general subject of proportionality, see Fenrick, *supra* note 123, and Judith G. Gardam, *Proportionality and Force in International Law*, 87 AM. J. INT'L L. 391 (1993).

167. *See* Gardam, *supra* note 166, at 409.

168. *See generally* Gardam, *supra* note 166 (discussing the balancing of military interests with civilian interests).

169. *See id*.

170. *See* Levie, *supra* note 72, at 482–83.

171. For a discussion of the difficulties entailed in the heterogeneous balancing required by proportionality analysis, see *id*. at 482 n.58 ("Frankly speaking, this author has never been able to understand how the balancing of civilian losses versus military advantage is to be accomplished.").

"reverberating effects," or the damage or injury caused indirectly by the attack. For instance, the Gulf War air campaign has been cited for the civilian suffering caused by the Coalition air campaign against the Iraqi electrical grid.[172] It was not the bombing that caused the suffering, but rather the second tier effect of shutting off electricity.[173]

Although it is well-accepted that proportionality calculations must include more than the immediate damage caused by the kinetic force of the weapon, where do the outer limits of the chain of causation set in motion by such action lie? Should the standard be foreseeability? Strict liability? When considering the environment in this context, estimations of damage must account for the highly developed network of relationships among the environment's seemingly infinite components. Yet, despite the advances of scientific inquiry, much of this complexity remains a mystery. Mysterious too is the apparent ability of the environment to adapt and thrive despite traumatic changes and disturbances. Parallels emerge here with the tort principle of proximate causation — a notoriously difficult area for the drawing of definitive lines of demarcation.

Finally, technological improvements in weapons accuracy are likely to exacerbate application of the proportionality principle as between those states which can afford "smart" weapons systems capable of limiting collateral damage, *e.g.* environmental damage, and those that cannot. It is a basic truism that military capability drives the willingness to accept, and impose, heightened restrictions on combat operations. Further complicating matters is the fact that the stunning newsreel footage of Gulf War precision strikes with smart weapons created heightened expectations regarding the ability to discriminate. Since predictions of what Gulf War damage would do to the environment proved exaggerated, the logical expectation might be a corresponding decrease in environmental concern. That does not seem to have taken place. As a result, operations posing environmental risks in the next war will have to survive magnified scrutiny before being approved as proportional. The dilemma in

172. For an example of the criticism of the bombing campaign, see Roger Normand & Chris af Jochnick, *The Legitimization of Violence: A Critical Analysis of the Gulf War,* 35 HARV. INT'L L.J. 387, 399–402 (1994).

173. *See id*.

complying with these emergent proportionality standards lies, as in the Gulf War, with the reliability of "scientific" determinations that are often no more than educated speculation. Thus, scientific speculation may drive decisions made from within diverse valuation paradigms.

III. THE PRINCIPLE OF PROPORTIONALITY AND THE PROBLEM OF VALUATION

As should be apparent, the key prescription in extending protection to the environment, a prescription present in both treaty and customary law, is that mandating proportionality analysis. Because proportionality requires a balancing of interests (military v. humanitarian), it becomes necessary to attribute value to those interests in competition with each other.[174] This valuation is the linch pin of the proportionality assessment process.

Valuation never occurs in a vacuum — it is paradigmatic. For instance, the value of an action or an object changes according to the context within which the valuation process occurs.[175] Objects of paramount importance at one stage of hostilities may be greatly reduced in significance by a succession of events.[176] Alternatively, valuation paradigms may reflect cultural differences.[177] In a failed or failing society, where misery and suffering seems to predominate on a large scale, human life may not be valued to the same degree as in an advanced and prospering culture. To make such an observation is not to say that all such determinations are of equal integrity and worth. Indeed, the degradation of human value runs contrary to the humanitarian principles that underlie all of the law of armed conflict. Be that as it may, the fact of disparity remains to potentially color normative interpretation.

Valuation paradigms may also be temporally determined, for

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174. *See* Fenrick, *supra* note 123, at 94–95.

175. An object of great conservation value during peacetime may have a reduced conservation value during war. *See* Merrit P. Drucker, *The Military Commander's Responsibility for the Environment*, 11 ENVTL. ETHICS 135, 150–51 (1989).

176. A target originally assessed as strategically important at the beginning of a war may later be reassessed and be determined to no longer be a strategic priority.

177. This was shown by Iraq's use of Kuwaiti and Iraqi civilians as human shields to protect Iraqi military installations targeted by Coalition Forces while Coalition Forces designed every attack to keep Iraqi civilian casualties to a minimum.

they develop and evolve over time.[178] The earlier discussion tracing the historical development of environmental considerations in the law of armed conflict illustrates this point.[179] War's devastating consequences on the environment — no new phenomenon — resulted in barely a murmur fifty years ago.[180] Today, by contrast, military leaders and policy-makers often display a growing concern for the environment by considering the foreseeability of environmental damage as they calculate proportionality.[181] The value attributed to the environment in the making of proportionality calculations has clearly evolved.

Given their emergent role in prescriptive schema, conceptually determined valuation paradigms are of special significance. Different individuals approach environmental protection from differing conceptual perspectives. In the West, evaluation of competing environmental priorities in the matrix formed by the laws of armed conflict tends to divide along two general value trajectories.[182] One, anthropocentrism, centers on the value man derives from the environment, whether for its "property," or "utility," or for more abstract qualities, such as its aesthetic value.[183] This approach, reflected in Additional Protocol I's Article 55 reference to "the health or survival of the population,"[184] predominates. The alternative frame of reference sees the environment in terms of extra-human, intrinsic value.[185] Environmental value, in this view, derives not only from its ability to nourish and sustain humankind, but also from an intrinsic worth of its own.[186] Its independent value is illustrated best by Arti-

178. *See* Hans-Peter Gasser, *Protection of the Civilian Population, in* THE HUMANITARIAN LAW IN ARMED CONFLICTS 209, 221–22 (Dieter Fleck ed., 1995).

179. *See supra* notes 16–52 and accompanying discussion.

180. Referring to the Geneva Civilian Convention of 1949 where the words "protection of the environment" were never used. *See* Roberts, *supra* note 33, at 229.

181. An excellent example of the manner in which military bodies have exhibited increased concern with the topic is reflected in the proceedings of the 1995 Conference at the United States Naval War College. *See generally* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24.

182. *See* Drucker, *supra* note 175, at 148–49. In general, the United States is more concerned with conservation and preservation of environment than European and third world countries.

183. *See id.* at 137.

184. Additional Protocol I, *supra* note 12, art. 55, *reprinted in* 16 I.L.M. at 1415.

185. *See* Drucker, *supra* note 175, at 137.

186. For an interesting discussion of "utilitarian" and "intrinsic worth" approaches, see *id.*

cle 35(3)'s omission of any reference to the human consequences of environmental damage.[187]

This latter approach risks sacrificing human worth altogether. To the extent that environmental values are considered separately, they, by definition, may supersede human ones when the two conflict. For instance, it would be theoretically possible that a commander operating within an intrinsic value paradigm might decide to launch an attack through a village rather than around it to avoid Article 35(3) damage to a large, environmentally fragile area on the village's outskirts. As long as the advance through the populated area was militarily necessary (pursuing a military objective on the other side of the village) and proportional (the importance of the objective outweighs the likely collateral damage and incidental injury), the operation of Article 35(3) would require such action. Surely, this approach is inconsistent with the humanitarian concerns underlying the entire body of the law of armed conflict. Would it ever be appropriate to sacrifice human values for environmental ones? When should the objective countenanced in the principle of military necessity be deferred in favor of environmental protection? Such decisions risk prolonging hostilities, either by inflaming enemy emotions or by foregoing operations contributing to terminate the conflict. Obviously, consensus even on this most basic level of value balancing may not necessarily be easy to achieve.[188]

Unfortunately, the existence of differing valuation paradigms, whether temporally, culturally, or contextually determined, is unavoidable. The causal factors underlying such differences are complex. Some bear on the motivation for valuation. As an illustrative example, both an agnostic "animal rights" activist, *e.g.*, one who sees

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187. *See* Additional Protocol I, *supra* note 12, art. 35, ¶ 3, *reprinted in* 16 I.L.M. at 1409.

188. Perhaps the effort to resolve the dissonance presented by competing conceptual valuation paradigms can be fostered by further definitional clarification. The word "environment" derives from the verb "environ," which means to surround or encircle. *See, e.g.*, WEBSTER'S II NEW COLLEGE DICTIONARY 377 (2d ed. 1995). Attempts to gain at least an etymological sense of the word, then, lead to the question, "Surrounding or encircling *what*?" The most obvious answer is those conditions of nature, the planet, and its atmosphere, that surround *man*, *humanity*. An intrinsic value alternative to this seemingly anthropocentric conclusion might run along the lines of: "Everything on the planet or its atmosphere that provides the conditions and circumstances, the surroundings, of everything else." Such a tautological rendering is virtually meaningless.

all distinction of value between human beings and plants and animals as arbitrary, and an Eastern Orthodox Christian, who assesses environmental value in terms of the creative and redemptive order established by God, might choose to assign a high value to protection of the environment. But, though the priority and order of significance of the environment may occupy the same place in the thinking of both of these individuals, the practical conclusions they draw therefrom will probably be profoundly different. The result will inevitably produce different perspectives on the relationship between the law of armed conflict and the environment.

To further complicate the mix, valuation may well fail to follow neat lines of nationality or ethnicity. The international aggregate of military commanders faced with implementing the law of armed conflict may be likely to align more closely to one another than to individuals of their own nationality because they share common concerns and taskings.[189] Tension among competing priorities is compounded at the international level, a point illustrated by the fact that developing states often insist on balancing environmental protection with the needs of development.[190] It should come as no surprise that the "hierarchy" of economic and political "needs" dictates the priority states place on environmental protection. Industry and technology in the West have had the opportunity to mature for decades without the added burden of satisfying pervasive environmental regulation. Developing states may not be given that temporal luxury, and may resent the added imposition of environmental restraints during periods of austere economic conditions. If this assessment is accurate, the "cognitive disparity" will grow, at least until a significant narrowing of the economic gap between developed and developing states.

All of this is to say that environmental considerations will com-

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189. For instance, one evaluator may see a forest on no other terms than as it presents a useful source of raw materials. Another might acknowledge an intangible value in the forest that encompasses and yet transcends its utility. From still another point of view, the forest may even outweigh human interests — though probably not the interest of those whose lives would be subject to forfeiture for its sake. Nevertheless, in each of these cases the military advantage obtained by damaging the forest could remain a fixed quantity. As the example shows, application of any proportionality analysis will not only vary according to different estimates of value, but even to the anterior question of the meaning and methods of evaluation itself.

190. This was the case at the Rio Conference, *supra* note 48.

plicate reliance on customary principles for the simple reason that such reliance removes few of the obstacles inherent in reaching consensus as to where the boundaries of permissible conduct should be drawn. The inadequacies of a surface-level agreement on these principles are exposed when confronted with the inevitable onslaught of serious challenges in the international arena. Thus, the concepts of military necessity and discrimination, considered alone, are unlikely to consistently serve as predictable and reliable constraints on environmental damage during armed conflict.

IV. DULCE ET DECORUM EST PRO ENVIRONMENT MORI?[191]

If law is to be of useful service to the global community, it must lend itself to a consistent, uniform, and practical application. Unfortunately, that part of the law of armed conflict which operates to safeguard the environment exhibits overall vagueness and inconsistency. The lack of international consensus as to the most basic units of value and priority renders application especially problematic. It is not even clear that agreement exists on whether the environment should be assigned a distinct category of value. If the environment should enjoy independent value, what priority should it be given in the pecking order of identifiable concerns? Is there a residual quantum of international consensus on the subject? Potential for tension and confusion exists even within homogeneous cultures, as it expands and compounds when the field widens to the cross-cultural arena. The complexity of the problem is readily apparent in the relatively quiet shallows of academic inquiry. Its elusiveness only intensifies in the open seas of war's fog and friction.

To a significant degree, difficulty in application derives from the paucity of internal coherence in this body of law. No historical, substantive body of law — to which changes accrete over time, clarifying, and hewing out a careful consistency among its terms — exists in this area. Rather, its various components have sprung up contemporaneously, full-fledged, apparently without minimal consideration of the connections to, and potential conflicts with, each other. Wit-

191. With apologies to Horace, see HORACE: THE ODES AND EPODES bk. III, Ode No. 2 (C.E. Bennett trans., 1952).

ness the lack of clarity as to basic definitions. Key provisions in the limited array of treaty laws dealing specifically with the environment contain the terms "widespread," "long-term," and "severe."[192] Such terms of art appear to be established now as critical components of the international legal language. Yet no common normative meaning for them exists. Such a state of affairs produces a recipe for confusion and inconsistency of application. The existence of a wide gap between the stated purposes of this body of law and its actual achievements is unsurprising. Given the array of latent difficulties and obstacles, it becomes necessary to extrapolate a sense of the path and shape of the law from points plotted here.

It is our opinion that, while the environmental law of armed conflict is generally on course, its current trajectory harbors significant risks. Clearly, it would be inappropriate and counter-productive to categorize the environment as simply another civilian object. The environment possesses unique characteristics, not shared by manmade objects that fall under the general heading of civilian property — its interconnectedness, its incapacity for synthetic substitution, and its irreplaceability, as examples. Thus, the unprecedented developments represented in the environment specific provisions of Additional Protocol I and ENMOD evidence a salutary trend.

Nevertheless, the course of events described earlier is not without concomitant danger. In the decades following Vietnam, the environment has increasingly come to be seen as a distinct entity of significant value.[193] It is one thing to recognize the environment as a separate interest worthy of protection. It is an altogether different thing to evaluate it without regard to human interests, as Article 35(3) of Additional Protocol I seems to do.[194] Given a mode of analysis that grants absolute value to the environment, the process and substance of law fracture into unforeseeable combinations. Humanitarian concern would have to be balanced within a new dimension against a variable of potentially equal or greater weight. The legal, social, and military consequences that might ensue remain conjectural, but since such an approach denigrates the interests of human-

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192. *See* ENMOD, *supra* note 29, 1108 U.N.T.S. 152, *reprinted in* 16 I.L.M. at 88; *supra* note 39 and accompanying text.

193. *See supra* note 24 and accompanying discussion.

194. *See* Additional Protocol I, *supra* note 12, art. 35, ¶ 3, *reprinted in* 16 I.L.M. at 1409.

ity as they stand juxtaposed against environmental concerns, the results would certainly contravene the efforts over the last century to extend sanctuary to those not directly participating in armed conflict.

Any project that asks human beings to accept and abide by a system of value that displaces real, tangible, and uniquely personal and communal interests with abstract, externally imposed concerns, risks asphyxiation. The rarified air of ideal utopias putrefies into the element of real dystopias. Thus, attempts to increase environmental protection through the ukase of a theoretical "absolute value" status incur the serious danger of producing perverse results. Attributing independent, "autonomous" value to the environment inevitably places it at cross-purposes with other concerns.[195] On what grounds can we justify a categorization that makes humanity *less* worthy of protection than the rest of the ecosystem? Or that defines it out of the ecosystem altogether? The danger is that those kernels of truth in the intrinsic value approach, which, taken alone, possess genuine worth and significance, face the prospect of being lumped together and abandoned along with its unacceptable and irresponsible elements in the process of reaction-formation. Fortunately, for now at least, the perspective represents an extreme — few responsible individuals who have considered the issue seriously would wish to go this far. Nevertheless, it does constitute a logical and natural projection, given the direction and thrust of the premises underlying the intrinsic value approach.

This criticism is not meant to imply that the environment lacks an intrinsic value, but rather to emphasize the importance of adopting procedures and standards in the laws of armed conflict, which provide a meaningful and workable matrix for human decision-making. The universal axiom that tradeoffs, often tragic in their nature and consequences, must be counted on, calculated, and weighed

195. Additional Protocol I's Article 35(3) does this, for once the level of environmental damage reaches a certain point, the unconditional prohibition of the statute's protection mechanism is activated, without regard to any countervailing human interest. *See* Additional Protocol I, *supra* note 12, art. 35, ¶ 3, *reprinted in* 16 I.L.M. at 1409. Consider, as another example, option A of the Plant proposal which would prohibit methods or means of warfare which are intended to, or may, cause any damage to the environment. *See* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR, *supra* note 45, at pt. 2, ch. I, § I(A)(a).

remains embedded in the human activity of warfare. In some cases, important interests may have to be sacrificed to secure the benefits that the law affords to what are deemed greater interests. For those seriously seeking to erect a robust and flexible normative framework that provides sufficient protection to the environment, the greatest challenge will lie in forging consensus on the priority of goals and values.

V. WHAT IS TO BE DONE?

The proposition that the law is inadequate begs the question of remedies. Almost inevitably, discussion turns to the prospects for a new law of armed conflict convention specifically devoted to the topic of environmental damage. Any such effort would be premature, for the community of states must first be clear on what it wants the law to accomplish. Currently, the desires of that community appear to be uncertain, a fact evidenced by the internal inconsistency, unsettling vagueness, and confusing definitions in the relevant law. This fact may simply result from the law's uneven, spasmodic development. More fundamentally, it may reflect serious divergence of valuation paradigms.

Whatever the cause, the international community hesitates to take on the task of crafting a new treaty. As noted by Adam Roberts:

> Such an attempt could run into fundamentally intractable problems (of which there have already been foretastes in other negotiations) about defining the natural environment; about defining damage to it; about working out exactly which environmentally damaging acts are forbidden; about distinguishing between intentional, collateral, and completely unexpected damage to the environment; about whether certain kinds of destruction, including even scorched earth, might be permissible in certain circumstances, including perhaps to a defending State within its own national territory; about establishing exactly what military-related activities could be permitted in any specially protected environmentally important areas; and about the applicability of existing international norms in non-international armed conflicts. The question of nuclear weapons would inevitably be raised, and it would probably be as hard as ever to bring such weapons within the framework of the

laws of war.[196]

Confusion and contradiction among cognitive perspectives contributes to the unlikelihood of consensus on a meaningful agreement. Moreover, the uncertainty that continues to enshroud much of the science of environmental protection complicates these normative and paradigmatic impediments. As Professor Roberts has pointed out, the apocalyptic (and scientifically flawed) pronouncements made during the Gulf War only served to undermine the credibility and effectiveness of those commentators seeking to protect the environment.[197] Advances in the law of environmental protection will only find sure footing when they are based upon reliable and complete scientific understanding of the relevant issues.[198] In the same way, greater prescriptive specificity will achieve lasting significance only in the context of a surer scientific foundation. This sequential approach would also increase the likelihood of harmonizing discordant valuation paradigms. A consistent, intelligent approach to environmental damage demands at the very least an educated evaluation of sound alternatives, rather than mere visceral discourse.

The flaws in the international environmental law of armed conflict, as outlined here, merit further attention. Currently, the most pressing task must be to identify common purposes and pursue them in constructive and systematic fashion. This process need not, and should not, presently include a convention for the purpose of drafting new law. Instead, improvements must focus on the elementary tasks of acquiring a dependable and wide ranging scientific understanding of the issues, clarifying terms, and defining the legal issues. It is only when such groundwork is firmly laid in place that the context for a true and meaningful international consensus can be forged. And, it is only by means of such a consensus that the law may be equipped to withstand, and positively influence, the inevitable vicissitudes, the storms and stresses of international conflict.

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196. Roberts, *supra* note 33, at 268.
197. *See id.* at 265.
198. For an interesting introduction to the complex of issues generated from a purely scientific perspective, see the comments of Dr. Arthur G. Gaines, Jr., *Comment: The Environmental Threat of Military Operations*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, *supra* note 24, at 136–47.