

Chapter XXXIII

Protection of the Environment in Time of Armed Conflict: Environmental Protection in Military Practice†

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I am most grateful to have the opportunity today to speak to you on this timely topic. As we are aware, there exists a continuing and, indeed, growing international interest in the subject of protecting the environment during and from military operations.

At the current stage of development of international law, the world community has every right to expect that concerns for the well-being of the environment will be taken into account by those planning and executing military operations. War itself is no longer looked upon as the moral or functional equivalent of a natural disaster, almost an act of God, as was the view in the 19th Century when States were free to initiate hostilities against each other. In the modern era, States and individuals alike can be held responsible for acts such as crimes against the peace and grave breaches of the law of war. This responsibility can extend to international damage to the environment in certain cases.

During the 20th Century, great natural devastations have accompanied the tragic human losses suffered during the 1914-1918 and 1939-1945 wars. My own father, as a soldier in the American Army, fought in the battle of the Huertgen Forest in 1944—an area of the German Ardennes less than 300 km from The Hague—that even today remains so despoiled by that battle that trees cannot be taken for lumber due to the amount of lead imbedded in the timber.

Today, we are all too aware of the human tragedy unfolding in Bosnia-Herzegovina, accompanied as it is by significant damage to the natural environment. But perhaps the most dramatic wartime environmental devastation in recent years occurred in Kuwait and the Persian Gulf as a result of premeditated and deliberate acts of environmental terrorism perpetrated by the Government of Iraq and its military high command. These acts, which included the sabotaging and torching of some 732 oil wells in Kuwait, created fires that

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have been described as “one of the most extraordinary man-made environmental disasters in recorded history.”¹ The health and environmental risks created by the well fires were certainly of major importance; however, although 3 million barrels of oil were being burned per day for an extended period, the global effect was fortunately moderated by the fact that—no thanks to Iraq—the plume of smoke created was confined well below the stratosphere, and by the additionally fortunate circumstance that the composition of the smoke particles made it likely they would be returned to the ground by precipitation.² On the local and regional level, of course, the smoke adversely affected air quality, visibility and surface temperatures.³ The last well fire was extinguished on 6 November 1991—most fires had been set almost 10 months earlier.

Equally destructive was the damage caused by the deliberate spillage of oil, begun on 12 January 1991, and which ultimately involved an estimated 4-6 million barrels of oil. A major source of the oil spill was the deliberate opening of control valves by Iraq at Kuwait’s off-shore Sea Island terminal adjacent to Mina Al-Ahmadi. This action was mitigated by the bombing of associated shore-side pipelines and a related manifold complex by USAF F-111 aircraft, an incident which, interestingly enough, offers us an example of direct military action taken for reasons which included protection of the environment.⁴

The Gulf War and other recent events have clearly helped to focus the attention of the world community on the subject of our inquiry. What currently are the international legal obligations of States with regard to protection of the environment in times of armed conflict? Of particular interest in this regard is United Nations General Assembly (U.N.G.A.) Resolution 47/37⁵ and its annexed memorandum.⁶ This latter document, prepared by the Governments of Jordan and the United States to assist members of the Sixth Committee in their deliberations on the subject, identified nine specific provisions of existing international law which provide protection for the environment during armed conflict, and an additional five which apply to States parties to international agreements containing provisions on the subject.⁷

U.N.G.A. Resolution 47/37 itself contains a number of interesting aspects. Adopted by consensus, this Resolution reflects the deep concern of the world community about environmental damage and the depletion of natural resources during recent conflicts, recalling explicitly “the destruction of hundreds of oil-well heads and the release and waste of crude oil into the sea,” and noting that “existing provisions of international law prohibit such acts.” The Resolution went on to declare that “destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law.”⁸

This statement is of special interest, not least because U.N.G.A. Resolution 47/37 was adopted unanimously.⁹ During the Gulf War, some commentators expressed concern that the international legal structure was not sufficiently

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developed to deal with problems such as these. While some strained to demonstrate that the 1977 U.N. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques¹⁰ (ENMOD Convention) would have been violated by Iraq had it been a party thereto¹¹, most others concluded that this would not have been the case.¹²

It seems clear that the ENMOD Convention's prohibitions are directed not at environmental warfare as such, but rather at what has been termed "geophysical warfare," which implies the deliberate manipulation of natural processes.¹³ Moreover, the ENMOD Convention prohibits a State party from the military or any other hostile use of environmental modification techniques that cause "widespread, long-lasting or severe" effects as the means of destruction, damage or injury to any other party. While it has been correctly noted that the insertion of the three quoted terms of limitation was "*particulièrement et très vigoureusement critiquée*,"¹⁴ their use in this context has served to focus the prohibitions accurately on that behavior which gave rise to special concerns on the part of the sponsoring and negotiating governments at the time. The ENMOD Convention was never envisaged as a general prohibition against environmental damage during war. To find, however, as have numerous commentators, that even had Iraq been a party to the ENMOD Convention during the time of its invasion and occupation of Kuwait, the prohibition of the Convention was in all probability not violated, is not to agree with those who imply that this very useful convention is somehow defective.¹⁵ Rather, it is simply to recognize that it is but one of many sets of prohibitions directed toward the protection of the environment during wartime, as reflected by its inclusion in the list of potentially applicable international agreements provided in the memorandum annexed to U.N.G.A. Resolution 47/37.

Still other observers took an opposite approach, arguing that there were no adequate legal prohibitions against what Iraq had done and that therefore a new international agreement was required to deter actions of this kind in the future. In fact, through U.N.G.A. Resolution 47/37, the world community has basically recognized that neither of these views is correct; that Resolution is confirmatory of the conclusion that the law of war itself contains a sufficient body of principles to provide a basis for deterrence and, should this fail, punishment. Indeed, and as you may know, the U.S. Government recently announced its intention to recommend to the Security Council that a commission be established to investigate Iraqi war crimes during the Gulf War.¹⁶ Such a commission could be modelled on that established for Bosnia-Herzegovina pursuant to United Nations Security Council (U.N.S.C.) Resolution 780 (1992).¹⁷ The U.S. Army's Report on Iraqi War Crimes During the Gulf War, already supplied to the United Nations, specifically cites acts of environmental terrorism as among the war crimes concerning which evidence has been compiled with a view to future prosecution.¹⁸

At this point, I would like to review the applicable rules of the law of war with respect to protection of the environment, in order to make clear that a substantive and accepted legal basis currently exists.

These provisions are as follows:

(a) The fundamental rule, set out in Article 22 of the Regulations annexed to the 1907 Fourth Hague Convention respecting the Laws and Customs of War on Land, that the right of belligerents to adopt means of injuring the enemy is not unlimited;

(b) The rules governing the means of injuring the enemy reflected in Article 23 of the aforementioned Hague Regulations, that prohibit the employment of poison (Article 23(a)) and the destruction of the enemy's property unless such destruction be imperatively demanded by the necessities of war (Article 23 (g)), and in Article 28 of the Hague Regulations that prohibit pillage;

(c) The rule, set out in Article 55 of the same Hague Regulations, that the occupying State is only an administrator and usufructuary of the real estate of the occupied State and consequently is required to safeguard the capital of these properties and administer them in accordance with the rules of usufruct;

(d) The rule, set out in Article 53 of the Fourth Geneva Convention of 1949 relative to the Protection of Civilian Persons in Time of War, that 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, is prohibited, except where such destruction is rendered absolutely necessary by military operations;

(e) It is a grave breach of international humanitarian law, and is a war crime, as set out in Article 147 of the Fourth Geneva Convention, to extensively destroy and appropriate property when not justified by military necessity and carried out unlawfully and wantonly;

(f) The rule, reflected in Articles 49 and 52 of the Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Additional Protocol I), that military operations may only be directed against military objectives and that acts of violence, whether in offense or defense ("attacks"), shall be strictly directed at military objectives;

(g) It is a war crime to employ acts of violence not directed at specific military objectives, to employ a method or means of combat which cannot be directed at a specific military objective, or to employ a means or method of combat the effects of which cannot be limited as required by the law of armed conflict;

(h) The rule that prohibits attacks which reasonably may be expected at the time 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, are prohibited; and

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(i) The rule that, in so far as objects are concerned, military objectives are limited to 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.

In addition, the following five legal principles apply to States parties to the international agreements in which the principles are incorporated:

(a) Article 55 of Additional Protocol I requires States parties to take care in warfare to protect the natural environment against widespread, long-term and severe damage;

(b) Articles 35(3) and 55 of Additional Protocol I also prohibit States parties from using 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;

(c) Article 55(2) of Additional Protocol I prohibits States parties from attacking the natural environment by way of reprisals;

(d) Article 2(4) of Protocol III to the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed To Be Excessively Injurious or to Have Indiscriminate Effects prohibits States parties from 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; and

(e) The ENMOD Convention prohibits States parties from engaging in military or any other hostile use of environmental modification techniques (*i.e.*, any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition or structure of the earth, its biota, lithosphere, hydrosphere and atmosphere, or of outer space) having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State party.¹⁹

The question has arisen as to whether these rules are sufficient to protect the environment. In order to reply, it may be instructive to examine how the above-cited principles were applied during the Gulf War.

With regard to the oil-related actions already referred to, it is clear that, *inter alia*, the elements of customary international law now codified in Articles 23 and 55 of the Hague Regulations cited above, as well as the provisions of Articles 53 of the Fourth Geneva Convention, were violated on literally hundreds of occasions—even if one were to take into account only the 732 oil wells that were sabotaged by Iraq and the large number of these that were set afire.²⁰ Pursuant to Article 147 of the Fourth Geneva Convention, a grave breach of that Convention occurred, since the Iraqi actions were committed against property subject to the protection

of that Convention and extensive destruction of such property took place unlawfully, wantonly and without military necessity.

Clearly, Article 22 of the Hague Regulations, limiting the means of injuring the enemy, was also violated in this regard. Moreover, the prohibitions of Articles 49 and 52 of Additional Protocol I, which require that military operations be directed only at military objectives and that acts of violence be strictly directed at military objectives, also appear to have been violated by the Iraqi attacks. While it may well be argued — and correctly — that not all attacks against oil wells are invalid *per se*,²¹ it seems clear that in the case of the Iraqi actions, no military objective was served by its evident plan to systematically destroy Kuwait's entire oil production capability. It must be recalled that virtually every Kuwaiti well-head was packed with 15-20 kg of Russian-made plastic explosives and electrically detonated in furtherance of the pre-meditated and vindictive Iraqi policy. All 26 Kuwaiti petroleum gathering stations were also destroyed, as were the technical specifications for every oil well in Kuwait. There was clearly no justification for these Iraqi actions under the principle of military necessity, although at least one commentator has suggested that in the face of Coalition air superiority, smoke from the burning oil wells would impair visibility, which it did to a degree. Also suggested is a rationale for oil spillage into the Gulf, *i.e.*, to impede military operations and deny fresh water supplies to Coalition forces.²² This latter use had led at least one other observer to raise the question of Iraq's having engaged in a form of chemical warfare.²³ Yet, as has been noted elsewhere, even if some transitory military advantages were to be derived from the smoke and oil slicks, the magnitude of the resultant destruction was dramatically out of proportion to those goals.²⁴

Some observers have gone beyond these illustrations of criminal activity. For example, it has been suggested that Article 35(3) of Additional Protocol I, which prohibits the employment of "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment" may be considered to have a normative content.²⁵ If so, it would of course provide an additional basis for prosecution of Iraqi officials. However, this view has not met with wide acceptance,²⁶ and indeed the memorandum appended to Resolution 47/37, previously mentioned, makes clear it is a matter of positive, not customary, law.²⁷

As the above analysis suggests, the international community can draw upon a considerable body of existing law to prohibit wanton destruction of the environment during wartime. As we have seen, both customary and conventional international law contain important rules in this area. Is what we now have sufficient?

This question has already been examined at some length. Following the cease-fire accord in the Gulf area, which took effect on 3 April 1991, pursuant to

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UNSC Resolution 687,²⁸ a number of international conferences were held to discuss whether the existing legal regime was in fact at a satisfactory stage of development.

These meetings included the following:

- the Conference on a Fifth Geneva Convention held at London in June 1991 under the sponsorship of Greenpeace International, the London School of Economics and Political Science, and the Center for Defence Studies;
- the Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, organized by the Government of Canada at Ottawa in July 1991; and
- the Consultations on the Law concerning the Protection of the Environment in Times of Armed Conflict, convened by the International Union for Conservation of Nature and Natural Resources and the International Council of Environmental Law at Munich in December 1991.

The Secretary-General of the United Nations has summarized the main conclusions of these meetings and has reported to the General Assembly on them. His chief finding was that:

[a]t those meetings, generally speaking, the idea of creating an entirely new body of international rules for the protection of the environment was ruled out. Most experts insisted on the importance of existing law. . . .²⁹

He went on to indicate his view that the next step for the international community was, instead, to ensure that even more States accede to or ratify existing treaties, that they observe their existing objectives and enact domestic implementing legislation.³⁰

In other words, the existing legal regime is adequate in concept, and adequate in terms of its infrastructure. What is lacking is, of course, execution. This is where prosecution, *e.g.*, before a war crimes tribunal, could serve to provide sorely needed credibility to the regime of agreements currently in place. In essence, it is enforcement that is solely needed now, not more international agreements.

In this connection, mention should certainly be made of the work of the U.N. Compensation Council, established under U.N.S.C. Resolution 687 (1991) to deal with the filing of claims against Iraq for damage caused during its unlawful invasion and occupation of Kuwait.³¹

Paragraph 16 of U.N.S.C. Resolution 687, in declaring the liability of Iraq for any direct loss or damage, explicitly mentioned "environmental damage or the depletion of natural resources" as giving rise to liability. It has been noted that although both types of injury would be covered under normal principles, this explicit reference to them obviates any need to refer the issue to commissioners for decision.³² The actual legal basis for the Commission's jurisdiction is found

in U.N.S.C. Resolution 674 (1990), paragraph 8 of which stressed the liability of Iraq in this regard.³³

Specifically, the Governing Council of the U.N. Compensation Commission, by a series of decisions culminating on 16 March 1992, established criteria for the filing of such claims additional to the criteria supplied in U.N.S.C. Resolution 687 (1991). These criteria included a mechanism for making the payment of restitution available to governments and international organizations with respect to direct environmental damage and the depletion of natural resources resulting from Iraq's actions. This will include losses or expenses resulting from:

(a) Abatement and prevention of environmental damage, including expenses directly relating to fighting oil fires and stemming the flow of oil in coastal and international waters;

(b) Reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;

(c) Reasonable monitoring and assessment of the environmental damage for the purposes of evaluating and abating the harm and restoring the environment;

(d) Reasonable monitoring of public health and performing medical screenings for the purposes of investigation and combating increased health risks as a result of the environmental damage; and

(e) Depletion of or damage to natural resources.³⁴

Nevertheless, we should always be ready to consider possible methods for improvement of the legal regime itself. Since Iraq's environmental depredations in Kuwait took place, there have been a number of suggestions to supplement the existing corpus of international law in this area. Among those most frequently put forward is the idea that the list of "objects and targets" explicitly protected from attack by a party during conflict, as set out in Additional Protocol I to the Geneva Conventions, should be expanded.³⁵ Taking this suggestion further, Professor Oxman is among those proposing a conceptual approach similar to that underlying the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict.³⁶ This analog would require the State in control of the environmental area of concern to avoid militarizing the site and otherwise avoid making particular objects therein located inviting targets. In return, attacks on such sites would be completely prohibited.³⁷

During a further meeting of experts, convened at Geneva in April 1992 by the International Committee of the Red Cross, the problem of protecting the environment in times of armed conflict was also considered. In particular, and closely related on the theoretical level to the 1954 Hague Convention, was the proposal made at the meeting to protect nature reserves ("subject to conditions that remain to be set"), which could be likened to demilitarized zones or other protected areas.³⁸

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The 1954 Hague Convention provides, in Chapter II, for special protection in the form of immunity from attack for a limited number of refuges intended to shelter movable cultural property in the event of armed conflict and of centers containing monuments and other immovable cultural property of very great importance, with three important provisions:

- they must be situated at an adequate distance from any large industrial center or from any important military objective;
- they are not used for military purposes; and
- they are distinctively marked and entered in an international register maintained for the purpose.³⁹

Thus, this is an aspect of possible future interest for protection of the environment during hostilities that may prove worthy of examination.

Meanwhile, however, the International Committee of the Red Cross (ICRC) has itself stated that, while in favor of doing more to protect natural resources in time of armed conflict, it generally has reservations about proposals to undertake a new process of codification in this area. Rather, the ICRC stress is also on the need for compliance.⁴⁰

The Secretary-General's Report also mentioned several other points. Of these, I would draw your attention to only one, the question of the use on the battlefield of certain specific weapons which may represent a growing risk to the natural environment. The Report stated,

[t]he law of armed conflict must therefore take these technical developments into account and keep [sic] their effects within tolerable limits.⁴¹

This is a statement with which few would quarrel. Yet its precise meaning is unclear. Is it a warning against the use of ballistic missiles armed with chemical warheads? Depleted uranium tank ammunition? I think not necessarily. Rather, I take this statement as a recognition that the law is sufficient, that the concepts of proportionality and necessity remain viable, and that the chief challenge for those who would see the environment protected to the maximum extent feasible during war is to find ways to enhance truly effective enforcement.⁴²

Notes

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1. Congressional Research Service, *The Environmental Aftermath of the Gulf War*, 102d Cong., 2d Sess., S. Prt. 102-84, at 8 (Mar. 1992) (citing Federal Interagency Task Force).

2. *Id.*, at 11-26. The United Nations Environmental Program announced in May 1993 that the smoke from burning Kuwaiti oil wells had no effect on the global climate and that air pollution from burning oil was not severe enough to cause major health problems of human beings. *Burning Kuwaiti Oil Wells Had No Effect on Climate*: U.N.E.P., Agency France Presse, 11 May 1993, available in LEXIS: Nexis Library, CURRNT File.

3. *Supra* n. 1 at 25-26.

4. *Id.* at 35. *See also* U.S. Department of the Navy, Office of the Chief of Naval Operations, *The US Navy in: Desert Shield—Desert Storm*, App. A, at A-20 (1991).

5. Protection of the environment in times of armed conflict, G.A. Res. 47/37, U.N. GAOR, 47th Sess., U.N. Doc. A/RES/47/37 (9 Feb. 1993).
6. U.N. Doc. A/C.6/47/3.
7. *Id.* at 2-3.
8. U.N. Doc. A/RES/47/37, at p. 2.
9. U.N. Doc. A/C.6/47/SR.19 (9 Nov. 1992).
10. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 18 May 1977, 31 U.S.T. 333; T.I.A.S. 9614.
11. See Okorodudu-Fubara, *Oil in the Persian Gulf War: Legal Appraisal of an Environmental Warfare*, 23 St. Mary's L.J., 123, 179-181 (1991).
12. See Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, Ottawa, Chairman's Conclusions, 12 July 1991 (unpublished, copy on file with author).
13. Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, 285 Int. Rev. of the Red Cross 567, 575 (Nov.-Dec. 1991).
14. Fischer, *Environnement: La Convention sur l'interdiction de l'environnement à des fins hostiles*, 23 A.F.D.I. 820, 829 (1977).
15. Toukan, *The Gulf War and the Environment: The Need for a Treaty Prohibiting Ecological Destruction as a Weapon of War*, 5 Fletcher F. World Aff. 95, 99-100 (1991).
16. U.S. Department of State Press Release, 14 Apr. 1993.
17. U.N. Doc. S/RES/780 (6 Oct. 1992).
18. U.S. Department of the Army, War Crimes Documentation Center, International Affairs Division, Office of the Judge Advocate General, Report on Iraqi War Crimes (Desert Shield/Desert Storm) (1992) [Unclassified Version], at 10-11. See also, U.S. Department of Defense, FINAL REPORT TO CONGRESS, CONDUCT OF THE PERSIAN GULF WAR (1992), 623-26.
19. These rules are closely based on the list set forth in U.N. Doc. A/C.6/47/3 (1992), at 2-3.
20. *Supra*, n. 18 at 13.
21. On a related point, the questions of whether crude oil may be considered a *munition de guerre*, see Wallach, *The Use of Crude Oil by an Occupying Belligerent as a munition de guerre*, 41 Int'l & Comp. L.Q. 287 (1992).
22. *Id.* at 294 n. 28.
23. Carruthers, *International Controls on the Impact on the Environment of Wartime Operations*, 10 Env't'l & Plan. L.J. 38, at 48-49 (1993).
24. Oxman, *Combat Environmental Warfare (Environmental Terrorism During Wartime and the Rules of War)*, 22 Ocean Deve. & Int'l L. 433 (1991).
25. See Kalshoven, *Prohibitions or Restrictions on the Use of Methods and Means of Warfare*, in THE GULF WAR OF 1980-88 (Dekker & Post eds. 1992) at 97, 100.
26. *Id.* van Hegelsom, *Comments*, 123, at 125.
27. *Supra* n. 6.
28. U.N.S.C. Res. 687, U.N. Doc. S/RES/687 (3 Apr. 1991).
29. Report of the Secretary-General, Protection of the Environment in Time of Armed Conflict, U.N. Doc. A/47/328 at 9 (31 July 1992).
30. *Id.*
31. U.N. Doc S/RES/687 (3 Apr. 1991).
32. Crook, *The United Nations Compensation Commission - A New Structure to Enforce State Responsibility*, 87 A.J.I.L. 144, 147 (1993).
33. U.N. Doc. S/RES/674 (29 Oct. 1990).
34. U.N. Doc. S/AC.26/1991/7/Rev. 1, at 8 (17 Mar. 1992).
35. Hawkins, *The Gulf War: Environment as a Weapon*, Proc. Am. S. Int'l L. 220, at 222 (1991).
36. 249 U.N.T.S. 215 (14 May 1954).
37. *Supra* n.24 at 436.
38. *Supra* n. 29, at 11.
39. *Supra* n. 32, Art. 8-10.
40. *Supra* n. 29, at 14.
41. *Id.*
42. For a precis of the operational context in which these rules operate, see Terry, *The Environment and the Laws of War: The Impact of Desert Storm*, 45 Naval War C. Rev. 61 (1992).