ARTICLES

Enforcing Conventional Humanitarian Law for Environmental Damage During Internal Armed Conflict

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INTRODUCTION

War by its very nature has serious consequences for the human and natural environment alike.[1] Moreover, technological advancements in the means and methods of warfare have dramatically changed the landscape of the theatre of

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1. Jay E. Austin & Carl E. Bruch, *Introduction*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 1, 1–5 (Jay E. Austin & Carl E. Bruch eds., 2000).

war,[2] fundamentally affecting both the way in which hostilities are conducted and their destructive impact on the environment.[3] Currently, the anthropocentrically derived, international treaty-based legal framework for the protection of the environment pays virtually no attention to the pure environmental aspects of armed conflict.[4] Yet, now that modern armed conflicts have a much greater potential to cause large-scale destruction and degradation of the natural as well as the human environment, a new, more effective, eco-centric approach is called for to protect the natural environment—this "silent victim" of war—in its own right.[5]

The existing international legal framework for the regulation of armed conflicts lacks a coherent body of norms or reasonably comprehensive mechanisms for implementation and enforcement of environmental protection measures or natural resource use in all conflict situations.[6] Most significantly, much of the existing humanitarian law does not apply to internal state conflict.[7] In internal armed conflict situations where the environment may be either a target or casualty of war, international obligations are far less restrictive than those applicable in international armed conflicts, so much so that there is hardly any specific treaty norm that directly and explicitly addresses the issue of environmental damage occurring during non-international armed conflict.[8] This is despite the fact that since 1999, the United Nations Environment Programme ("UNEP") has conducted over thirty post-conflict environmental assessments and its findings affirm that a majority of recent armed conflicts have in fact been either non-international or civil wars.[9] In some of those conflicts, not only has the environment been used as a weapon, but natural resources have also been abused

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2. Christopher D. Stone, *The Environment in Wartime: An Overview*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 16, 17–18 (Jay E. Austin & Carl E. Bruch eds., 2000).

3. Silja Vöneky & Rüdiger Wolfrum, *Environment, Protection in Armed Conflict*, MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW ¶¶ 6–12 (2016).

4. Richard Falk, *The Environmental Law of War: An Introduction*, *in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT 78, 86 (Glen Plant ed., 1992).

5. Karen Hulme, *A Darker Shade of Green: Is it Time to Ecocentrise the Laws of War?*, *in* INTERNATIONAL LAW AND ARMED CONFLICT: CHALLENGES IN THE 21ST CENTURY 142, 143–47 (Noëlle Quénivet & Shilan Shah-Davis eds., 2010); *see also* Michaela Halpern, *Protecting Vulnerable Environments in Armed Conflict: Deficiencies in International Humanitarian Law*, 51 STAN. J. INT'L L. 119, 121 (2015).

6. ELIZABETH MARUMA MREMA, CARL BRUCH & JORDAN DIAMOND, U.N. ENV'T PROGRAMME, PROTECTING THE ENVIRONMENT DURING ARMED CONFLICT: AN INVENTORY AND ANALYSIS OF INTERNATIONAL LAW 9 (2009), http://www.un.org/zh/events/environmentconflictday/pdfs/int_law.pdf.

7. John F. Murphy, *Will-o'-the-Wisp—The Search for Law in Non-International Armed Conflicts*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, 88 INT'L L. STUD. 15, 18–25 (2012).

8. Adam Roberts, *The Law of War and Environmental Damage*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 47, 76 (Jay E. Austin & Carl E. Bruch eds., 2000).

9. RICHARD MATTHEW, OLI BROWN & DAVID JENSEN, U.N. ENV'T PROGRAMME, FROM CONFLICT TO PEACEBUILDING: THE ROLE OF NATURAL RESOURCES AND THE ENVIRONMENT 8–14 (2009), http://postconflict.unep.ch/publications/pcdmb_policy_01.pdf.

as a means of financing armed conflicts and the acquisition of arms.[10]

Political, rather than humanitarian, considerations limit environmental protection in non-international armed conflicts[11] based on two fundamental principles of international law: state sovereignty and non-intervention. Traditionally, states are very reluctant to attach any sense of internationality to their internal conflicts, which essentially remain states' own affairs within domestic jurisdiction. They are careful not to grant international status to rebels, which would risk recognizing and legitimizing rebel causes. As a matter of sovereignty, rebels who take up arms against states are dealt with as common criminals under national laws. By the principle of non-intervention, states are to refrain from interfering with the internal affairs of other states. Thus, to protect their territorial integrity and political independence, states are entitled to use any means necessary to suppress an internal armed uprising at any humanitarian cost.[12] The only exception is the recognition of belligerency, a doctrine that came to an end in the first half of the last century.[13] Moreover, there are some practical difficulties in enforcing humanitarian law in a time of internal armed conflict through penal law. A state party to a conflict is invariably very reluctant to prosecute its own soldiers. Warring parties are reluctant to prosecute captured foes in fear of reprisals to their own prisoners. Third parties are also politically reluctant to prosecute, risking their unwilling involvement in someone else's war.[14]

Holding non-state armed groups and their members accountable for violations of humanitarian law presents uneasy challenges. Yet, because perpetrators of environmental wrongs in internal armed conflicts often act with impunity,[15] and since post-conflict environmental damage and natural resource degradation have profound implications for human health, livelihood, and security, it is all the more important that there should be justice in some shape or form for the victims of internal conflicts who suffer the consequences of environmental damage.[16] It

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10. Phoebe Okowa, *Environmental Justice in Situations of Armed Conflict*, *in* ENVIRONMENTAL LAW AND JUSTICE IN CONTEXT 231, 234–35 (Jonas Ebbesson & Phoebe Okowa eds., 2009); *see also* Daniëlla Dam-de Jong, *From Engines for Conflict into Engines for Sustainable Development: The Potential of International Law to Address Predatory Exploitation of Natural Resources in Situations of Internal Armed Conflict*, 82 NORDIC J. INT'L L. 155, 157–59 (2013).

11. *See generally* ANTHONY CULLEN, THE CONCEPT OF NON-INTERNATIONAL ARMED CONFLICT IN INTERNATIONAL HUMANITARIAN LAW (2010).

12. Richard A. Falk, *Janus Tormented: The International Law of Internal War*, *in* INTERNATIONAL ASPECTS OF CIVIL STRIFE 185, 197–209 (James N. Rosenau ed., 1964) (analyzing international law governing internal wars in three relevant statuses: rebellion, insurgency, and belligerency).

13. Lindsay Moir, *The Historical Development of the Application of Humanitarian Law in Non-International Armed Conflicts to 1949*, 47 INT'L & COMP. L.Q. 337, 340–44 (1998).

14. Michael Bothe, *Criminal Responsibility for Environmental Damage in Times of Armed Conflict*, *in* PROTECTION OF THE ENVIRONMNT DURING ARMED CONFLICT 69 INT'L L. STUD. 473, 473 (1996).

15. *See generally* LIESBETH ZEGVELD, ACCOUNTABILITY OF ARMED OPPOSITION GROUPS IN INTERNATIONAL LAW (2002).

16. ONITA DAS, ENVIRONMENTAL PROTECTION, SECURITY AND ARMED CONFLICT: A SUSTAINABLE DEVELOPMENT PERSPECTIVE 212 (Edward Elgar ed., 2013).

is a matter of justice that internal armed conflicts ultimately achieve compliance with the rules of humanitarian law.

This Article aims to explore possibilities of individual criminal responsibility as a means of enforcement of conventional humanitarian law for environmental damage during internal armed conflict. Part I examines the existing treaty regimes for the legal protection of the environment in internal armed conflict with reference to Protocol II of the Geneva Conventions of 1949 and arms control regulations. Part II discusses the viability of the penal repression of violations of international humanitarian law for environmental wrongs as means of enforcement in view of the far-reaching implications of the *Tadić* decision of the International Criminal Tribunal for the Former Yugoslavia and the Rome Statute of the International Criminal Court. In conclusion, this Article argues that, although penal sanctions against the most egregious environmental damages remain the only viable means of enforcement, effectiveness ultimately depends on strengthening the substantive body of law regarding internal armed conflict,[17] complementary to a wider scheme of proposals and strategies to develop and enhance the existing normative legal framework for protection of the environment through the unification of international humanitarian law.[18]

I. LEGAL PROTECTION OF THE ENVIRONMENT IN INTERNAL ARMED CONFLICT

After the Second World War, as modern humanitarian law extended beyond the domain of international armed conflict, the legal regulation of internal armed conflicts emerged, marking a paradigm shift towards the more comprehensive legal framework for the protection of war victims and civilians largely in effect today.[19] Until such time, legalization of internal armed conflict was hardly conceived in any measure under classical international law, nor was it possible to speak of normative regulation in the conventional law of environmental protection as such in any shape or form.[20] The only exception was a third state's recognition of insurgent belligerency. To gain "belligerent status" was, however, contingent upon not only the fulfillment of certain necessary conditions, but also insurgents' observance of the customary laws of war.[21]

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17. Richard Falk, *The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 137, 145–46 (Jay E. Austin & Carl E. Bruch eds., 2000).

18. Lindsay Moir, *Towards the Unification of International Humanitarian Law?*, *in* INTERNATIONAL CONFLICT AND SECURITY LAW 108, 116–19 (Richard Burchill, Nigel D. White & Justin Morris eds., 2005).

19. *See* Moir, *supra* note 13, at 353–55.

20. Int'l Law Comm'n, Second Rep. on the Protection of the Environment in Relation to Armed Conflicts, U.N. Doc. A/CN.4/685, at 35 (May 28, 2015).

21. G.I.A.D. Draper, *Humanitarian Law and Internal Armed Conflicts*, 13 GA. J. INT'L & COMP. L. 253, 257 (1983).

The treaty-based law of non-international armed conflict is a product of Article 3 common to the four Geneva Conventions of 1949.[22] It provides merely for basic humanitarian protection in situations of "armed conflict not of an international character" occurring in the territory of one of the High Contracting Parties. Yet, it is marred with much ambiguity regarding the identification of which conflicts fall within the scope of its application.[23] The definition of protection in internal armed conflict suffers from similarly minimal substance; it is comprised simply of each Party's obligation to provide certain humane treatment for persons taking no active part in the hostilities, and to offer humanitarian assistance for the wounded and sick.[24] The condensed language and generality of Article 3 leaves the scope of humanitarian protection open to interpretation,[25] thus making it a source of constant debate on how far the purported protection can be extended.[26] Although no reference is seemingly made on the whole to the protection of the environment in either common Article 3 or the four Geneva Conventions,[27] some commentators suggest that adopting an expansive interpretation of the prohibition of "violence to life and person" may bring the use of "some practices and weapons" causing such violent environmental consequences within the purview of common Article 3 as a basis for prosecuting environmental damages.[28] However, a lack of reference in the article to the protection of either property or the environment makes it hard to seek a concealed intention to provide for such indirect protection with any meaningful utility.[29] This is mainly because environmental protection was not in the forefront of the treaty-makers' agenda at the time

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22. Geneva Convention Relative to the Treatment of Prisoners of War art. 3, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter Geneva POW Convention]; LAURA PERNA, THE FORMATION OF THE TREATY LAW OF NON-INTERNATIONAL ARMED CONFLICTS 52–53 (2006); *see also* David A. Elder, *The Historical Background of Common Article 3 of the Geneva Convention of 1949*, 11 CASE W. RES. J. INT'L L. 37, 37 (1979).

23. The article does not seem to specify in what conditions it should apply. Nor does it set out any particular criteria for the duration or scale of a conflict to qualify it as a non-international armed conflict. *See generally* ANTHONY CULLEN, THE CONCEPT OF NON-INTERNATIONAL ARMED CONFLICT IN INTERNATIONAL HUMANITARIAN LAW 55–59 (2010).

24. By implication, civilians who are not members of the armed forces, thereby taking no actual part in armed conflict, must receive the full protection of common Article 3. *See* LINDSAY MOIR, THE LAW OF INTERNAL ARMED CONFLICT 58–63 (Cambridge Univ. Press 2003).

25. Georges Abi-Saab, *Non-International Armed Conflicts*, *in* INTERNATIONAL DIMENSIONS OF HUMANITARIAN LAW 217, 222–23 (UNESCO 1988).

26. YORAM DINSTEIN, NON-INTERNATIONAL ARMED CONFLICTS IN INTERNATIONAL LAW 132–36 (2014).

27. JEAN S. PICTET ET AL., INTERNATIONAL COMMITTEE OF THE RED CROSS, COMMENTARY: IV GENEVA CONVENTION RELATIVE TO THE PROTECTION OF CIVILIAN PERSONS IN TIME OF WAR 25–44 (1958).

28. Geneva POW Convention, *supra* note 22, art. 3; *see also* Aurelie Lopez, *Criminal Liability for Environmental Damage Occurring in Times of NonInternational Armed Conflict: Rights and Remedies*, 18 FORDHAM ENVTL. L. REV. 231, 240 (2007); Carl E. Bruch, *All's Not Fair in (Civil) War: Criminal Liability for Environmental Damage in Internal Armed Conflict*, 25 VT. L. REV. 695, 709–10 (2001); *cf.* Aaron Schwabach, *Ecocide and Genocide in Iraq: International Law, the Marsh Arabs, and Environmental Damage in Non-International Conflicts*, 15 COLO. J. INT'L ENVTL. L. & POL'Y 1, 10–11 (2004).

29. *See* Roberts, *supra* note 8, at 76.

of the Geneva Conference.[30]

Legal awareness of the detrimental effects of warfare on the environment arose for the most part in reaction to the United States' use of the natural environment as a military target in the Vietnam War. To subdue enemy guerilla forces, the United States employed methods and tactics involving high-explosive munitions, incendiary weapons, herbicides, anti-personnel chemicals, weather manipulation, bombing raids against dams, dikes, and seawalls, and mechanical land clearing for widespread and systematic crop destruction and deforestation.[31] In the 1970s, with ecological consciousness piqued internationally,[32] the concept of environmental protection in armed conflict was, for the first time, introduced in two concurrent multilateral instruments: the 1977 Protocol (I) Additional to the Geneva Conventions of 1949 ("Additional Protocol I")[33] and the 1977 United Nations Convention of the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques ("ENMOD").[34] Each instrument provided for a different kind of protection. The former deals with environmental damage occurring during armed conflict, while the latter prohibits use of the environment as a means of warfare.

The significance of Additional Protocol I cannot be overstated as one of the first international agreements to contain two specific provisions to provide for direct protection of the environment during international armed conflict. Article 35(3) prohibits the "employ[ment 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" while Article 55 aims to protect "the natural environment against widespread, long-term and severe damage" in order to safeguard the health or survival of the population.[35] Although both articles similarly refer to protection against "widespread, long-term and severe damage" to the natural environment, there is a discernable distinction. Article 35(3) aims to prohibit unnecessary injury to the natural environment by limiting the methods and means of warfare, whereas the purpose of Article 55 is to ensure the health and survival of the civilian population dependent on the surrounding environ-

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30. Liesbeth Lijnzaad & Gerard J. Tanja, *Protection of the Environment in Times of Armed Conflict: The Iraq-Kuwait War*, 40 NETH. INT'L L. REV. 169, 176 (1993).

31. Michael N. Schmitt, *Green War: An Assessment of the Environmental Law of International Armed Conflict*, 22 YALE J. INT'L L. 1, 9–11 (1997).

32. *See generally* Richard A. Falk, *Environmental Warfare and Ecocide*, *in* THE VIETNAM WAR AND INTERNATIONAL LAW 287 (Richard A. Falk ed., 1976).

33. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Protocol I].

34. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333, 1108 U.N.T.S. 152 [hereinafter ENMOD].

35. Protocol I, *supra* note 33, arts. 35, 55. *But see* Richard A. Falk, *Environmental Disruption by Military Means and International Law*, *in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL, AND POLICY APPRAISAL 33, 39 (Arthur H. Westing ed., 1984).

ment, thus making it an object to be protected to that end.[36] That being so, Article 35(3) emerges as a novelty in some measure by adopting an "environment-oriented approach" to protection; the natural environment itself is to be protected because of its intrinsic value, in contrast to the "anthropocentric approach" of traditional humanitarian law that remains the rationale of Article 55.[37]

Notably, the two articles, devoid of reference to "military necessity" as justification for environmental damage, operate independently of the considerations of any military advantage, value, or imperative.[38] Both are comparably applicable to situations where there is either an intent to cause or an expectation of causing damage to the environment—including not only deliberate or direct attacks, but also those that should be reasonably foreseeable[39]—and thus leave merely inadvertent collateral environmental damage outside their ambit.[40] Here, by expectation, the presumption works against a military commander who should have known if his attack would cause objectively foreseeable damage.[41]

However, once the condition of intent has been met, only "widespread, long-term and severe" environmental harm will reach the threshold of impermissible harm that qualifies as infringement. Use of the conjunctive "and" imposes a cumulative rather than alternative requirement for a triple standard. Only when all three elements of widespread, long-term, and severe damage are met concurrently does a material breach occur.[42] Added to the high threshold of harm, no formal definition of the terms "widespread," "long-term," or "severe" is given in either Protocol I, its semi-official commentary, or the *travaux préparatoires* of the Diplomatic Conferences. With the possible exception that the "long-term" criterion was understood by some delegates as referring to "a scale of decades, twenty or thirty years as being a minimum," there is little more to shed light on the duration of damage, the scope of area affected, or the detrimental effect experienced.[43]

Although the *raison d'être* of Article 35(3) is the protection of the environment itself from excessive wartime damage, an additional human factor is incorporated

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36. YVES SANDOZ, CHRISTOPHE SWINARSKI & BRUNO ZIMMERMANN, COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, 414 (Martinus Nijhoff ed., 1987).

37. *But see* Hulme, *supra* note 5, at 148–50.

38. Protocol I, *supra* note 33, arts. 35, 55. *But see* Bernard K. Schafer, *The Relationship Between the International Laws of Armed Conflict and Environmental Protection: The Need to Reevaluate What Types of Conduct are Permissible During Hostilities*, 19 CAL. W. INT'L L.J. 287, 321 (1988).

39. ERIK KOPPE, THE USE OF NUCLEAR WEAPONS AND THE PROTECTION OF THE ENVIRONMENT DURING INTERNATIONAL ARMED CONFLICT 152 (2008).

40. Yoram Dinstein, *Protection of the Environment in International Armed Conflict*, 5 MAX PLANCK Y.B. OF U.N. LAW 523, 533 (2001).

41. Guy B. Roberts, *The New Rules for Waging War: The Case Against Ratification of Additional Protocol I*, 26 VA. J. INT'L L. 109, 148 (1985); Mark J.T. Caggiano, *The Legitimacy of Environmental Destruction in Modern Warfare: Customary Substance over Conventional Form*, 20 BOS. C. ENVTL. AFF. L. REV. 479, 491 (1993).

42. Wil D. Verwey, *Protection of the Environment in Times of Armed Conflict: In Search of a New Legal Perspective*, 8 LEIDEN J. INT'L L. 7, 10 (1995).

43. KAREN HULME, WAR TORN ENVIRONMENT: INTERPRETING THE LEGAL THRESHOLD 91–98 (2004).

in Article 55, the transgression of which may ultimately depend on whether such environmental damage prejudices the health or survival of the population.[44] That said, rather than imposing an additional requirement, consequent human suffering may arguably be considered a particular example of the seriousness of damage to underscore the purpose of a general norm of environmental protection that is the duty of care in Article 55.[45] Hulme defines the duty of care as an obligation of due diligence to take reasonable steps in attack and defense to protect the environment by way of avoiding widespread, long-term, and severe damage in warfare.[46] Irrespective of whether Article 35(3) or Article 55 has a more stringent prohibition,[47] both articles are the only environment-specific proscriptions in Protocol I, and are designed to be complementary rather than duplicative. These Articles address environmental as well as human concerns, but more importantly, they present direct protection—albeit subject to a very high and vague threshold of damage—by factoring environmental considerations into the decision-making processes of determining the methods, means, and tactics of warfare.[48] Notwithstanding the innovative eco-sensitive character of such prohibitions, some commentators doubt the utility of imposing "any significant limitation on combatants waging conventional warfare."[49] These commentators argue that the prohibitions would only be relevant to such unconventional means of warfare as weapons of mass destruction—one of the few means capable of meeting the high threshold of damage to the natural environment.[50]

Protocol I applies solely to international armed conflict, and no corresponding or comparable provisions for environmental protection are contained in Protocol II regulating non-international armed conflicts.[51] The negotiation records indicate an unsuccessful attempt to include in Protocol II a provision similar to

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44. Michael N. Schmitt, *Humanitarian Law and the Environment*, 28 DENV. J. INT'L L. & POL'Y 265, 276 (2000); *see also* Michael Bothe, *War and Environment*, *in* 4 ENYCLOPEDIA OF PUBLIC INTERNATIONAL LAW 1342, 1344 (Rudolf Bernhardt ed., North Holland 2000).

45. *See* Lijnzaad & Tanja, *supra* note 30, at 181.

46. Karen Hulme, *Taking Care to Protect the Environment Against Damage: A Meaningless Obligation?*, 92 INT'L REV. RED CROSS 675, 680 (2010).

47. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 663; Schmitt, *supra* note 44, at 277.

48. Michael D. Diederich, Jr., *"Law of War" and Ecology—A Proposal for a Workable Approach to Protecting the Environment Through the Law of War*, 136 MIL. L. REV. 137, 156–60 (1992).

49. MICHAEL BOTHE, KARL JOSEPH PARTSCH & WALDEMAR A. SOLF, NEW RULES FOR VICTIMS OF ARMED CONFLICTS: COMMENTARY ON THE TWO 1977 PROTOCOLS ADDITIONAL TO THE GENEVA CONVENTIONS OF 1949, 389–90 (2d ed. 2013).

50. *Id*.

51. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts, Jan. 23, 1979, 1125 U.N.T.S. 609 [hereinafter Protocol II]; *see* Verwey, *supra* note 42, at 29; James A. Burger, *Environmental Aspects of Non-International Conflicts: The Experience in Former Yugoslavia*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, 69 INT'L L. STUD. 333, 337–38 (1996); *see also* Stephanie N. Simonds, *Conventional Warfare and Environmental Protection: A Proposal for International Legal Reform*, 29 STAN. J. INT'L L. 165, 182 (1992) ("Thus, armed forces presumably may damage the environment of their own state during a domestic conflict, as long as they remain within the bounds of Protocol II's version of the 'Martens Clause.'").

Article 55 of Protocol I (draft Article 48 *bis*), which was adopted by Committee III but failed to clear plenary session.[52] Even if it had not been so, the requirement that all three features of environmental damage be present for the prohibition to be applicable would have rendered it hardly more effective than the provisions of Protocol I, whose usefulness even for international armed conflict remains limited,[53] and whose customary status is far from settled.[54]

A. ADDITIONAL PROTOCOL II

Protocol II—relating to the protection of victims of non-international armed conflicts—is intended to develop, clarify, and supplement common Article 3 to the Geneva Conventions of 1949 with detailed and specific provisions on fundamental guarantees of humane treatment, including the regulation of the conduct of hostilities and methods and means of combat for the protection of civilian populations. However, the difficult negotiation history of Protocol II reveals that the "traditional insistence" by states to "maintain[] maximum discretion in dealing with those who threaten their sovereign[ty]"[55] will result in modest legal reach in comparison to Protocol I.[56]

While common Article 3 applies to non-international armed conflicts occurring within a state party, the scope of application of Protocol II is limited to conflicts in which hostilities reach a certain level of intensity. This level is measured by the criteria that a non-state armed group must be organized under a command structure, which is capable of keeping part of the territory under its control and implementing the Protocol.[57] Such a limit thereby excludes internal disturbances and tensions such as riots, and other isolated and sporadic acts of violence. Yet, even though it fails to encompass the scope of common Article 3 regarding non-international armed conflict, Protocol II potentially has a broader normative content to prohibit environmental damage in situations where it applies. It also contains provisions that may afford indirect environmental protection even though not specifically aimed at the environment per se, but primarily at either

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52. Philippe Antoine, *International Humanitarian Law and the Protection of the Environment in Time of Armed Conflict*, 32 INT'L REV. RED CROSS 517, 525 (1992).

53. Glen Plant, *Environmental Damage and the Laws of War: Points Addressed to Military Lawyers*, *in* EFFECTING COMPLIANCE, 2 ARMED CONFLICT AND THE NEW LAW 159, 166–67 (Hazel Fox & Michael A. Meyer eds., 1993).

54. Susan Breau, *Protection of the Environment During Armed Conflict*, *in* ROUTLEDGE HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW 617, 628 (Shawkat Alam et al. eds., 2013).

55. Theodor Meron, *Protection of the Environment During Non-International Armed Conflicts*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, 69 INT'L L. STUD. 353, 353 (1996).

56. *See generally* Sylvie Junod, *Additional Protocol II: History and Scope*, 33 AM. U. L. REV. 29 (1983).

57. *See generally* Protocol II, *supra* note 51; Anthony Cullen, *Key Developments Affecting the Scope of Internal Armed Conflict in International Humanitarian Law*, 183 MIL. L. REV. 66, 91–97 (2005); G.P.H. Haryomataram, *Internal Disturbances and Tensions: Forgotten Conflicts*, *in* A CENTURY OF WAR AND PEACE: ASIA-PACIFIC PERSPECTIVES ON THE CENTENARY OF THE 1899 HAGUE PEACE CONFERENCE 155 (Timothy L.H. McCormack, Michael Tilbury & Gillian D. Triggs eds., 2001).

civilian objects and property or civilian persons.[58] These provisions correspond to similar provisions of Protocol I, but are not necessarily derived from common Article 3, and therefore, are deemed novel in the context of internal armed conflict.[59] Protocol II may therefore ultimately provide a scaled-down form of Protocol I's international conflict protections to internal conflict.[60]

1. Protection of Property

Although in certain respects Protocol II has fewer substantive provisions than Protocol I, the broad interpretation of Protocol II's provisions may actually "provide more direct protection to environmental assets" and overcome the gaps created by the omission of environment-specific obligations in the context of internal armed conflict.[61] To this end, Articles 14 through 16 of Protocol II—designed primarily to protect civilian objects and property from the adverse effects of internal armed conflict—may also have implications for environmental damage to the environment as property.[62] Much depends on the definition of the natural environment, which is missing in the Protocols,[63] yet urged by some to be understood, in the broadest sense, to comprise "the biological environment in which a population is living."[64] Since "property" denotes ownership of an object, only certain parts of the environment can be assigned to public or private ownership.[65] Roberts argues for an expansive definition of property "encompass-[ing] public goods (not necessarily under specific ownership) such as common land, forests, the atmosphere, water resources and the open seas."[66] While compelling,[67] the anthropocentric approach to the conception of property used in the Protocols would accord civilian status to only limited parts of the environ-

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58. *See* Schwabach, *supra* note 28, at 24–26 (applying those provisions to the issue of the Marsh Arabs in Iraq).

59. Lindsay Moir, *Non-International Armed Conflict and Guerrilla Warfare*, *in* 1 INTERNATIONAL CRIMINAL LAW 323, 325 (M. Cherif Bassiouni ed., 3d ed. 2008).

60. *See* Abi-Saab, *supra* note 25, at 230.

61. *See* Meron, *supra* note 55, at 357.

62. *See* MREMA, BRUCH & DIAMOND, *supra* note 6, at 16.

63. Betsy Baker, *Legal Protections for the Environment in Times of Armed Conflict*, 33 VA. J. INT'L L. 351, 364–65 (1993) (noting that the Protocol "does not explicitly specify that the environment has civilian status, and thus does not provide the environment with the same protections afforded to more traditional civilian objects such as places of worship.").

64. SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 662; *see also* Plant, *supra* note 53, at 160–70.

65. Anthony Leibler, *Deliberate Wartime Environmental Damage: New Challenges for International Law*, 23 CAL. W. INT'L L. J. 67, 105–06 (1992). *But see* Luan Low & David Hodgkinson, *Compensation for Wartime Environmental Damage: Challenges to International Law After the Gulf War*, 35 VA. J. INT'L L. 405, 437–38 (1995).

66. *See* Roberts, *supra* note 8, at 57.

67. Michael Bothe, *Protection of the Environment in Times of Armed Conflict*, *in* INTERNATIONAL LEGAL ISSUES ARISING UNDER THE UNITED NATIONS DECADE OF INTERNATIONAL LAW 95, 98–100 (Najeeb Al-Nauimi & Richard Meese eds., 1995).

ment, without any ecological considerations.[68] Be that as it may, natural wealth and resources may well qualify as civilian objects and property because, in certain circumstances, they are regarded as indispensable to the health and survival of the civilian population.[69]

a. Protection of Objects Indispensable to the Survival of the Civilian Population

Article 14 of Protocol II focuses on the survival of the civilian population by prohibiting the use of starvation as a method of combat. For that purpose, objects indispensable to the survival of the civilian population are also protected from attacks, destruction, removal, or being rendered useless in ways that would result in starvation. Such objects are identified as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies, and irrigation works.[70] But the listed objects are only illustrative,[71] allowing for further expansion insofar as new objects constitute the means of existence for civilians. Environmental objects "such as ground water or aquifers might be considered indispensable" if the civilian population depended on them for survival.[72] For an essential drinking water supply, man-made drinking water installations, and irrigation works ought to be broadly interpreted to include freshwater resources as a basic human need to be protected.[73] Perhaps more direct environmental protection can be derived from prohibiting attacks against agricultural areas frequently targeted specifically to weaken the hostile adversary.[74] To a lesser extent, protection of crops and livestock would also indirectly help safeguard the natural environment. Nevertheless, the important qualification is the link of environmental protection to the end result of starvation. These environmental objects must be indispensable for the survival of the civilian

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68. Richard Desgagné, *The Prevention of Environmental Damage in Time of Armed Conflict: Proportionality and Precautionary Measures*, 3 Y.B. INT'L HUMANITARIAN L. 109, 115 (2000); *see also* Karen Hulme, *Environmental Protection in Armed Conflict*, *in* RESEARCH HANDBOOK ON INTERNATIONAL ENVIRONMENTAL LAW 586, 590–92 (Malgosia Fitzmaurice, David M. Ong & Panos Merkouris eds., 2010) (criticizing terminological inconsistencies and conceptual confusion with little legal sense).

69. Daniëlla Dam-de Jong, *International Law and Resource Plunder: The Protection of Natural Resources During Armed Conflict*, 19 Y.B. INT'L ENVTL. L. 27, 37–38, 44 (2008).

70. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1455.

71. *Id.*

72. *See* Baker, *supra* note 63, at 371.

73. Mara Tignino, *Water in Times of Armed Conflict*, *in* THE PERMANENT COURT OF ARBITRATION/PEACE PALACE PAPERS: RESOLUTION OF INTERNATIONAL WATER DISPUTES 319, 325–26 (International Bureau of the Permanent Court of Arbitration ed., 2003); Ameur Zemmali, *The Protection of Water in Times of Armed Conflict*, 308 INT'L REV. RED CROSS 550, 554 (1995).

74. Rüdiger Wolfrum, *The Protection of the Environment in Armed Conflict*, 45 ISR. Y.B. ON HUM. RTS. 67, 83 (2015).

population.[75] Therefore, the prohibition on damaging the environment as a method of combat is absolute and without an exception for military necessity.[76] In fact, Article 14(2) lacks the caveat that these environmental objects would become lawful military targets if used as sustenance solely for military personnel or in direct support of military action, as contained in the corresponding provisions of Article 54(3) of Protocol I.[77]

b. Protection of Works and Installations Containing Dangerous Forces

Article 15 of Protocol II prohibits any attack in non-international armed conflict on works or installations if such attack may cause the release of dangerous forces consequently causing severe losses among the population. For example, the targeting of dams, dikes, and nuclear electrical generation stations is forbidden because the release of dangerous forces—such as large amounts of water or radioactive materials—would cause heavy loss of civilian life and damage to civilian property. Targeting is forbidden even when these objects constitute military objectives presenting strategic advantages. Unlike the equivalent provision of Article 56 of Protocol I, no exception is provided for military necessity in Article 15, thus making it comparably absolute in its application to internal armed conflicts.[78] In contrast, the 2005 International Committee of the Red Cross ("ICRC") Study on Customary International Humanitarian Law seems to formulate it as a duty of care to confirm its customary status in both international and non-international armed conflicts.[79] In this less-than-absolute form, Article 15 of Protocol II merely calls for caution in the form of a proportionality test regarding attacks on works and installations containing dangerous forces when targeted as a military objective.[80]

Since it mainly aims at protecting the civilian population, the prevention of collateral environmental damage caused by the release of dangerous forces is incidental.[81] Rather than a prohibition against all attacks, Article 15 only prohibits attacks capable of releasing forces dangerous enough to cause cata-

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75. Ensign Florencio J. Yuzon, *Deliberate Environmental Modification Through the Use of Chemical and Biological Weapons: "Greening" the International Laws of Armed Conflict to Establish an Environmentally Protective Regime*, 11 AM. U. J. INT'L L. & POL'Y 793, 817 (1996).

76. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1456.

77. Jean-Marie Henckaerts & Dana Constantin, *Protection of the Natural Environment*, *in* THE OXFORD HANDBOOK OF INTERNATIONAL LAW IN ARMED CONFLICT 469, 476 (Andrew Clapham & Paola Gaeta eds., 2014). *Compare* Protocol II, *supra* note 51, art. 14(2), *with* Protocol I, *supra* note 33, art. 54(3).

78. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1462; *see also* Leibler, *supra* note 65, at 108 (discussing the exceptions in Article 56 of Protocol I). *Compare* Protocol II, *supra* note 51, art. 15, *with* Protocol I, *supra* note 33, art. 56.

79. JEAN-MARIE HENCKAERTS & LOUISE DOSWALD-BECK, CUSTOMARY INTERNATIONAL HUMANITARIAN LAW VOLUME I: RULES 139 (Cambridge Univ. Press 2005).

80. Susan C. Breau, *Protected Persons and Objects*, *in* PERSPECTIVES ON THE ICRC STUDY ON CUSTOMARY INTERNATIONAL HUMANITARIAN LAW 169, 198 (Elizabeth Wilmshurst & Susan Breau eds., 2007).

81. *See* Baker, *supra* note 63, at 372.

strophic loss of civilian life and civilian objects.[82] Because environmental protection is consequential in the case of such a loss, this would presumably leave the natural environment surrounding the protected works and installations vulnerable to less-intensive attacks or collateral damage resulting from attacks against other military targets in their vicinity.[83] Another restrictive feature of Article 15 is the exhaustive list of excluded installation types such as "oil wells and pumping stations, as well as chemical and biological weapons production facilities,"[84] even though, in reality, military attacks on such objects would potentially cause widespread, long-term, and severe effects on the environment.[85]

c. Protection of Cultural Objects and Places of Worship

The purpose of Article 16 of Protocol II is to protect historic monuments, works of art, or places of worship which constitute the cultural or spiritual heritage of a people. Because the prohibitions of Article 16 are directed against hostilities jeopardizing the physical integrity of the protected objects, environmental protection is merely ancillary to the extent that it is physically adjacent, forming the area where these objects are situated.[86] Despite a lack of direct reference to the environment itself, the provision is nevertheless considered "useful in providing legal protection for the natural environment during armed conflict."[87] It complements the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict of 1954,[88] which calls for respect of cultural property in non-international armed conflicts, by refraining from any use of the property and its immediate surroundings in support of military efforts which are likely to expose it to destruction or damage.[89] Its second Protocol of 1999[90] imposes an obligation on both state and non-state parties in a non-international armed conflict to take all feasible precautions against the effects of

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82. Protocol II, *supra* note 51, art. 15; *see* BOTHE, PARTSCH & SOLF, *supra* note 49, at 786.

83. *See* Schmitt, *supra* note 31, at 78.

84. *See* Yuzon, *supra* note 75, at 819; *see also* Adam Roberts, *Failures in Protecting the Environment in the 1990–91 Gulf War*, *in* THE GULF WAR 1990-91 IN INTERNATIONAL AND ENGLISH LAW 111, 123 (Peter Rowe ed., 1993) (discussing the reasoning of exclusion in Article 56 of Protocol I).

85. L.C. Green, *The Environment and the Law of Conventional Warfare*, 29 CAN. Y.B. INT'L L. 222, 227 (1991); *see also* Wolfrum, *supra* note 74, at 83.

86. Protocol II, *supra* note 51, art. 15; *see* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1470.

87. *See* MREMA, BRUCH & DIAMOND, *supra* note 6, at 18.

88. Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, May 14, 1954, 249 U.N.T.S. 240.

89. Protocol II, *supra* note 51, art. 16; *see* BOTHE, PARTSCH & SOLF, *supra* note 49, at 791 (noting that Article 16 fails to extend to any use of the property and its immediate surroundings which is likely to expose the property to destruction or damage).

90. Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict, Mar. 26, 1999, 38 I.L.M. 769.

hostilities on cultural property, but still fails to reference the environment.[91]

However, Article 16 speaks of the protected objects as representing the cultural and spiritual heritage of the people. Under an expansive interpretation, a particular part of a natural environment such as a river, lake, forest, or mountain of historical, spiritual, or religious significance may likewise form the heritage of mankind, and may therefore also benefit from similar protection. Following the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage,[92] the United Nations Education, Scientific, and Cultural Organization ("UNESCO") has been able to identify and safeguard certain sites having particular importance to the heritage of mankind by placing them on the World Heritage in Danger List in case of the outbreak or the threat of an armed conflict.[93] In effect, this could pave the way for the setup of virtual "environmental demilitarized zone[s]."[94] For instance, UNESCO "has been running a pilot project in the Democratic Republic of Congo since 2000 to try to use the Convention as an instrument to improve the conservation of World Heritage sites in regions affected by armed conflict."[95] However, because "many of the ecologically sensitive areas threatened by armed conflict in Africa, Central America, and elsewhere have already been named World Heritage Sites—but to little effect in the face of troop movements or large refugee populations," the efficacy of the World Heritage Convention's enforcement mechanism in internal armed confict situations has been criticized as inadequate for regulating wartime environmental damage.[96] That said, what emerges as part of a larger conventional framework is an area-based protection in internal armed conflicts against damage to the environment surrounding places and objects of particular historical, cultural, or religious significance once they are declared protected natural zones.[97] Pursuant to the 1972 World Heritage Convention and its 1999 Second Protocol, the International Union for Conservation of Nature ("IUCN") Draft Convention on the Prohibition of Hostile Military Activities in Internationally Protected Areas attempts to create safe natural areas for protection during internal armed conflict by setting out a mechanism for the designation of protected areas as non-target areas where all hostile military activity is prohibited, effectively

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91. *Id.*; Jean-Marie Henckaerts, *The Protection of Cultural Property in Non-International Armed Conflicts*, *in* PROTECTING CULTURAL PROPERTY IN ARMED CONFLICT: AN INSIGHT INTO THE 1999 SECOND PROTOCOL TO THE HAGUE CONVENTION OF 1954 FOR THE PROTECTION OF CULTURAL PROPERTY IN THE EVENT OF ARMED CONFLICT 81, 90 (Nout van Woudenberg & Liesbeth Lijnzaad eds., 2010).

92. Convention Concerning the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 27 U.S.T. 37.

93. *See World Heritage List*, UNESCO WORLD HERITAGE CENTRE, http://whc.unesco.org/en/list/ (last visited Nov. 21, 2016).

94. *See* Diederich, *supra* note 48, at 148.

95. *See* MREMA, BRUCH & DIAMOND, *supra* note 6, at 38.

96. Jay E. Austin & Carl E. Bruch, *Legal Mechanisms for Addressing Wartime Damage to Tropical Forests*, 16 J. SUSTAINABLE FORESTRY 161, 172 (2003).

97. *See* Bruch, *supra* note 28, at 711–13.

creating environmental demilitarized zones.[98]

2. Protection of Persons

Direct legal protection of civilians is at the center of both Articles 13 and 17 of Protocol II, based on the fundamental principle of immunity for those who do not take part in hostilities under common Article 3. In that sense, civilian protection is the application of the customary distinction between civilians and combatants, sparing the former from direct military attacks.[99] This is basically an anthropocentric approach to harm prevention, but such an approach may indirectly result in environmental protection during internal armed confict.

a. Protection of the Civilian Population

Article 13(1) of Protocol II protects civilians—both as a population and as individuals—against the dangers posed by military operations, including not only from attacks themselves, but also from their incidental effects.[100] Civilians cannot be made military targets, and the prohibition of direct attack against the civilian population is both absolute and broad to the extent that "attacks against civilian objects used as dwellings or otherwise occupied by civilians not then supporting the military effort" are covered.[101] Article 13(1) also requires taking precautions to reduce the collateral damage of military attacks that could affect civilians. It follows that combatants should be barred from causing environmental damage which may conceivably pose a danger to the civilian population. In fact, if damage to the environment is one of the anticipated dangers of military operations, care and precaution should be taken to avoid exposing the civilians to such attacks, defensive measures, or their incidental effects.

For a general prohibition to be applicable, much depends on how much potential the ensuing environmental damage has to put civilian protection at risk. Air and missile warfare is one example where the dangers of military operations are likely to cause the degree of damage necessesary to jeopardize the civilian population.[102] The Harvard University 2009 Humanitarian Policy and Conflict Research Manual on International Law Applicable to Air and Missile Warfare

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98. Protocol II, *supra* note 51, art. 13(1). *See generally* Richard G. Tarasofsky, *Protecting Specially Important Areas During International Armed Conflict: A Critique of the IUCN Draft Convention on the Prohibition of Hostile Military Activities in Protected Areas*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 567 (Jay E. Austin & Carl E. Bruch eds., 2000).

99. *See* HENCKAERTS & DOSWALD-BECK, *supra* note 79, at 5–8.

100. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1449.

101. *See* BOTHE, PARTSCH & SOLF, *supra* note 49, at 779.

102. Marie Jacobbson, *Protection of the Environment and Air and Missile Warfare: Some Reflections*, 45 ISR. Y.B. ON HUM. RTS. 51, 60–61 (2015).

prohibits the wanton destruction of the natural environment as a general rule.[103] It is applicable to non-international armed conflict for both direct attacks against the natural environment as a civilian object, and attacks against military objectives expected to cause excessive collateral damage to the natural environment.[104] To minimize adverse effects, it further requires that the natural environment be given due regard and constant care when planning and conducting air or missile operations.[105] Article 13(2) forbids making civilians the object of attack, which may also include secondary effects on the civilian population from attacks on other military objectives.[106] Therefore, where civilians are present, the natural environment should not be targeted as a legitimate military objective because such an attack might produce incidental harm to them.

Since the civilian population is immune from both attacks in offense and in defense, the use of civilians as a shield for military objectives is prohibited.[107] There is no room for the principle of proportionality in targeting the environment as the object of attack where involuntary human shields are located because they are considered civilians taking no active part in hostilities and are therefore entitled to full protection under Article 13.[108] Moreover, if the environment is targeted as a means of spreading terror among the civilian population, it may well trigger the prohibition in that provision, thereby serving as indirect environmental protection, albeit to safeguard civilians from the intended cruel suffering.

b. Prohibition of the Forced Movement of Civilians

Article 17 of Protocol II prohibits the forced displacement of the civilian population for political reasons due to armed conflict. If the displacement of individuals or groups results from a deliberate destruction of the environment, then such an act against the environment may also fall within the purview of this prohibition. In internal armed conflict, it may be a government policy to forcibly move ethnic groups or dissident national groups to deprive insurgents of "the logistical, political and intelligence support" they get from local communities.[109] To achieve that policy, targeting the environment as a means of attack on the civilian livelihood to drive them out of their homes can seldom be considered an

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103. Program on Humanitarian Policy & Conflict Research, *Rule 88*, *in* COMMENTARY ON THE HPCR MANUAL ON INTERNATIONAL LAW APPLICABLE TO AIR AND MISSILE WARFARE 206 (2010), http://www.ihlresearch.org/amw/manual/.

104. *Id*.

105. Program on Humanitarian Policy & Conflict Research, *Rule 89*, *in* COMMENTARY ON THE HPCR MANUAL ON INTERNATIONAL LAW APPLICABLE TO AIR AND MISSILE WARFARE 207 (2010), http://www.ihlresearch.org/amw/manual.

106. Protocol II, *supra* note 51, art. 13(2); *see* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1451.

107. *See* BOTHE, PARTSCH & SOLF, *supra* note 49, at 780.

108. Ian Henderson & Patrick Keane, *Air and Missile Warfare*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 282, 291–92 (Rain Liivoja & Tim McCormack eds., 2016).

109. *See* BOTHE, PARTSCH & SOLF, *supra* note 49, at 795; Protocol II, *supra* note 51, art. 17.

imperative military reason. A much-debated example is the draining of Mesopotamian marshlands by Iraq to forcibly move the Marsh Arabs, an indigenous community whose livelihood depended on the marshland ecosystem.[110] That "[t]he Marsh Arabs were forced to relocate by the destruction of their environment" is commonly thought to have contravened the provision in Article 17 without a justifiable military necessity.[111] Even though such harmful acts committed against the environment to cause the unnecessary forced displacement of civilians in internal armed conflict would seem prohibited, the customary principles of necessity and discrimination still play an important part in determining what kind of environmental damage could in practice qualify as a violation within the meaning of this Article.

B. CONVENTIONAL LAW ON WEAPONS

It is a truism that "weapons have the potential to cause serious and lasting damage to the environment."[112] Legal control of the development and use of highly destructive weapons undoubtedly benefits the natural environment by providing indirect protection against their deliberate or unintended harmful effects[113] through the basic principle of limitation.[114] In any armed conflict, including those of non-international character,[115] the right of the parties to the conflict to choose the methods and means of warfare is not unlimited.[116] To that end, under Article 35(3) of Protocol I, the parties are obligated to determine if a *new* weapon, means, or method of warfare is intended, or may be expected, to cause widespread, long-term, and severe damage to the natural environment.[117] To Boothby, the legality assessment of a new weapon in terms of its environmental impact depends on "whether the weapon, in itself, may be expected to cause the prohibited damage, or whether the weapon in its normal use will inevitably have those consequences."[118] However, neither common Article 3 nor Additional Protocol II contain any specific provisions for limiting the means or methods of

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110. *See generally* Mishkat Al Moumin, *Mesopotamian Marshlands: An Ecocide Case*, 20 GEO. INT'L ENVTL L. REV. 499 (2008) (noting the Marsh Arabs' role in the uprising against the Iraqi Government after the first Gulf War).

111. *See* Schwabach, *supra* note 28, at 26.

112. *See* MREMA, BRUCH & DIAMOND, *supra* note 6, at 13.

113. *See* Henckaerts & Constantin, *supra* note 77, at 477.

114. Roberta Arnold, *The Protection of the Environment*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 384, 396 (Rain Liivoja & Tim McCormack eds., 2016).

115. ROBERT KOLB, ADVANCED INTRODUCTION TO INTERNATIONAL HUMANITARIAN LAW 80 (2014).

116. Convention (IV) Respecting the Laws and Customs of War on Land and Annex: Regulations Respecting the Laws and Customs of War on Land art. 22, Oct. 18, 1907, 36 Stat. 2277; Protocol I, *supra* note 33, at art. 36, *in* THE LAWS OF ARMED CONFLICTS: A COLLECTION OF CONVENTIONS, RESOLUTIONS, AND OTHER DOCUMENTS 72, 730 (Dietrich Schindler & Jiří Toman eds., 4th ed. 2004) [hereinafter Schindler & Toman].

117. Protocol I, *supra* note 33, art. 35; *see* Henckaerts & Constantin, *supra* note 77, at 478.

118. Bill Boothby, *The Law of Weaponry—Is it Adequate?*, *in* INTERNATIONAL LAW AND ARMED CONFLICT: EXPLORING THE FAULTLINES 297, 305 (Michael Schmitt & Jelena Pejic eds., 2007).

warfare in non-international armed conflict.[119]

The existing legal vacuum may be filled with a useful argument from analogy to both conventional humanitarian law on weaponry and arms control treaties. Regulating weapons by prohibiting their use, development, production, acquisition, stockpiling, retention, and by calling for their destruction has historically been achieved through bilateral or multilateral efforts on the international plane.[120] Their limited application to internal armed conflicts has, nevertheless, been criticized in the *Tadić* case, which noted that it is "preposterous that the use by States of weapons prohibited in armed conflicts between themselves be allowed when States try to put down rebellion by their own nationals on their own territory."[121] The legal evolution of disarmament has been, in some measure, responsive to this highlighted contradiction with the acceptance of an all-inclusive formula of "never under any circumstances" enabling the scope of application of modern weapons treaties to extend to cover conflicts of non-international character.[122] Therefore, there may be a distinct prospect for indirect protection against environmental damage occurring during a conflict internal to a single state if it is caused by either the use of unspecific weapons categorically banned as being inhumane, or the impermissible use of specific types of restricted weapons that are otherwise lawful.

1. Chemical, Bacteriological, and Biological Weapons

The 1925 Geneva Gas Protocol prohibits the use of chemical and biological weapons in war.[123] The prohibition on the use of asphyxiating, poisonous, or other gases, and of analogous liquids, materials, or devices, further extends to the use of bacteriological methods of warfare,[124] with an indirect effect that the deleterious impact of their use on the natural environment could be avoided as a result.[125] Having examined the legitimacy of environmental targets and the use of chemical and biological weapons against such targets, Yuzon regards a blanket

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119. Protocol II, *supra* note 51; Geneva POW Convention, *supra* note 22.

120. CHERIF BASSIOUNI, A MANUAL ON INTERNATIONAL HUMANIATARIAN LAW AND ARMS CONTROL AGREEMENTS 18–19 (2000).

121. Prosecutor v. Tadić, Case No. IT-94-1-I, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 119 (Int'l Crim. Trib. for the Former Yugoslavia Oct. 2, 1995).

122. Mirko Sossai, *Conventional Weapons*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 197, 205 (Rain Liivoja & Tim McCormack eds., 2016).

123. Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare, Geneva, June 17, 1925 26 U.S.T. 571, 94 L.N.T.S. 65, *reprinted in* Schindler & Toman, *supra* note 116, at 105.

124. ALAN BRYDEN, INTERNATIONAL LAW, POLITICS, AND INHUMANE WEAPONS: THE EFFECTIVENESS OF GLOBAL LANDMINE REGIMES 20–22 (2013).

125. Rosario Domínguez-Matés, *New Weaponry Technologies and International Humanitarian Law: Their Consequences on the Human Being and the Environment*, *in* THE NEW CHALLENGES OF HUMANITARIAN LAW IN ARMED CONFLICTS 91, 94 (Pablo Antonio Fernández-Sánchez ed., 2005) (defining the 1925 Gas Protocol as the first treaty that generically refers to weapons of mass destruction and to the environment as such).

ban on the use of bio-warfare as applicable to human targets and plants alike, even if the coverage of chemical weapons is significantly limited in comparison to the inclusive term of "bacteriological methods of warfare."[126] This apparent lack of clarity in the forms of banned chemical warfare that have detrimental effects on the environment, for instance, allowed the United States to claim that non-lethal chemical weapons such as tear gas and chemical herbicides used widely in the Vietnam War fell outside the ambit of the Gas Protocol.[127] However, a United Nations General Assembly Resolution of 1969 confirmed the scope of environmental application by declaring that the prohibition would extend to any chemical or biological agents of warfare with toxic effects on animals and plants.[128]

The 1925 Geneva Gas Protocol contains an obligation incumbent upon state parties not to use prohibited weapons in war and therefore, does not apply to non-international armed conflicts.[129] That may be so, since it is generally agreed that such a ban is customary in state practice, as evidenced by "domestic legislation, military manuals and the statements of governments and national case-law."[130] The Protocol may therefore be applicable to both international and internal armed conflicts, regardless of whether a warring state is a party to it.[131] But its practical effectiveness has been undermined by controversies and exceptions arising from ambiguous wording that allow for varying interpretations and reservations. These ambiguities have made reciprocity conditional on the observance by other state parties of the prescribed prohibitions.[132] In fact, the prevailing view on reciprocal use is that "at least the first use of lethal chemical and biological weapons is prohibited by customary international law."[133] The Protocol also has other shortcomings of practical importance—such as forbidding only the use of chemical and biological weapons in warfare—leaving their research, development, production, acquisition, stockpiling, possession, and distribution unregulated. Additionally, there is neither an internationally recognized control mechanism for monitoring or verifying treaty compliance, nor a

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126. *See* Yuzon, *supra* note 75, at 830–32.

127. Richard G. Tarasofsky, *Legal Protection of the Environment During International Armed Conflict*, 24 NETH. Y.B. INT'L L. 17, 56 (1993).

128. DOCUMENTS ON THE LAWS OF WAR 156 (Adam Roberts & Richard Guelff eds., 2000).

129. *See generally* BRYDEN, *supra* note 124, at 23.

130. Kenneth Watkin, *Chemical Agents and Expanding Bullets: Limited Law Enforcement Exceptions or Unwarranted Handcuffs?*, 36 ISR. Y.B. ON HUM. RTS. 43, 47 (2006).

131. Karen Hulme, *Armed Conflict, Wanton Ecological Devastation and Scorched Earth Policies: How the 1990–91 Gulf Conflict Revealed the Inadequacies of the Current Laws to Ensure Effective Protection and Preservation of the Natural Environment*, 2 J. ARMED CONFLICT L. 45, 63 (1997).

132. Nearly thirty-five reservations have the condition of reciprocity. *See* Schindler & Toman, *supra* note 116, at 116–23; *see also* Schmitt, *supra* note 44, at 286.

133. DOCUMENTS ON THE LAWS OF WAR, *supra* note 128, at 157 (also noting that less consensus exists on the status under customary international law of non-lethal chemical weapons).

criminal responsibility regime for treaty violations.[134] These deficiencies, however, were remedied with subsequent treaties.

The issue of possession was brought under regulation in the 1972 Biological Weapons Convention,[135] which prohibits in any circumstances the development, production, stockpiling, acquisition, or possession of microbial or biological agents or toxins in quantities not justifiable for peaceful purposes, or the similar development and procurement of equipment or means of delivery designed to use such agents or toxins in armed conflict. Parties also have an obligation to destroy all agents, toxins, weapons, equipment, or delivery systems that they possess, and undertake not to transfer them to anyone else. The omission of the prohibition on the actual use of biological weapons could illustrate its intended function as a supplement to the 1925 Geneva Gas Protocol.[136] The absolute formula of "never in any circumstances" is, nonetheless, subject to a criterion of quantities, denoting that stock below certain levels qualifies under an exemption for peaceful purposes. Yet, no collective mechanism of verification is established to make such determination independently of the state parties themselves,[137] though verification by the U.N. Security Council may be possible through a complaint procedure.[138] Still, in implementing the provisions of Article II, states are obliged to take all necessary safety precautions to protect populations and the environment. It is suggested that the Convention and the Protocol have the combined effect of "protect[ing] the environment in armed conflict from weapons that are likely to cause significant environmental degradation, particularly to the natural environment and to fauna and flora."[139]

The persistent deficiency in an effective compliance-control mechanism was overcome by the 1993 Chemical Weapons Convention,[140] which stands as the first multilateral disarmament treaty to impose a blanket ban on the entire category of chemical weapons for both use and possession under a strict international verification regime. Thus, its scope is broader than that of the

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134. Robert J. Mathews, *Chemical and Biological Weapons*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 212, 216–17 (Rain Liivoja & Tim McCormack eds., 2016).

135. Convention on the Prohibition of Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, April 10, 1972, 26 U.S.T. 583, 1015 U.N.T.S. 163, *reprinted in* Schindler & Toman, *supra* note 116, at 135.

136. Eric P.J. Myjer, *The Organization for the Prohibition of Chemical Weapons: Moving Closer Towards an International Arms Control Organization? A Quantum Leap in the Institutional Law of Arms Control*, *in* ISSUES OF ARMS CONTROL LAW AND THE CHEMICAL WEAPONS CONVENTION: OBLIGATIONS INTER SE AND SUPERVISORY MECHANISMS 61, 69 (Eric P.J. Myjer ed., 2001).

137. *See* Mathews, *supra* note 134, at 223–26 (reiterating international efforts to strenghten implementation procedures).

138. *See* Tarasofsky, *supra* note 127, at 56–57 (criticizing the effectiveness of recourse to the Security Council).

139. *See* MREMA, BRUCH & DIAMOND, *supra* note 6, at 15.

140. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Jan. 13, 1993, 1974 U.N.T.S. 45 [hereinafter Chemical Weapons Convention], *reprinted in* Schindler & Toman, *supra* note 116, at 239.

Biological Weapons Convention.[141] The Chemical Weapons Convention entails an absolute prohibition against the development, production, acquisition, stockpiling and retention, transfer, and use of chemical weapons, while prohibited chemical materials are itemized and defined.[142] Each state party is under an obligation to declare and destroy chemical weapons in its possession or under its jurisdiction, or those it has abandoned beyond its jurisdiction, as well as any chemical weapon production facility within the prescribed timeframe.[143] The Convention involves not only the destruction of the existing chemical weapons and their production facilities, but also bans the future production of chemical weapons and their precursors.[144]

The Convention furthermore facilitates ways and methods for verifying state parties' compliance with national implementation of their obligations, taking the form of peaceful means, such as cooperation and negotiations, or collective measures, including recourse to the U.N. Security Council.[145] More importantly, for the international verification of compliance with the core obligations of the Convention, an independent international organization—the Organization for the Prohibition of Chemical Weapons ("OPCW")—has been set up to monitor the implementation of its provisions by the state parties.[146] The provision in Article IV, Paragraph 10 requires that highest priority be given to the safety of people and the protection of the environment during all chemical weapons transportation, sampling, storage, and destruction operations.[147] Furthermore, the detailed procedure for the implementation of this provision explicitly prohibits destruction techniques such as water dumping, land burial, and open-pit burning for ecological reasons.[148]

Though not specifically mentioned in the Convention, there are compelling reasons for its application to both international and internal armed conflict. The "never under any circumstances" formula not only categorically prohibits the use of chemical weapons by state parties, but also the development, production, acquisition, stockpiling, retention, or transfer of such weapons with the plan of

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141. *See* Myjer, *supra* note 136, at 73.

142. *See* Chemical Weapons Convention, *supra* note 140; Jozef Goldblat, *The 1993 Chemical Weapons Convention: A Significant Step in the Process of Multilateral Disarmament*, *in* THE CONVENTION ON THE PROHIBITION AND ELIMINATION OF CHEMICAL WEAPONS: A BREAKTHROUGH IN MULTILATERAL DISARMAMENT 15, 18 (Daniel Bardonnet ed., 1996).

143. Chemical Weapons Convention, *supra* note 140; *see* Myjer, *supra* note 136, at 76–79 (listing the primary and procedural obligation under the Convention).

144. Myjer, *supra* note 136, at 76–79.

145. *See* Goldblat, *supra* note 142, at 20–21.

146. *See generally* ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS, VERIFICATION PRACTICE UNDER THE CHEMICAL WEAPONS CONVENTION: A COMMENTARY (Walter Krutzsch & Ralf Trapp eds.,1999).

147. Chemical Weapons Convention, *supra* note 140, art. IV; Ralf Trapp & Paul Walker, *Article IV: Chemical Weapons*, *in* THE CHEMICAL WEAPONS CONVENTION: A COMMENTARY 119, 144 (Walter Krutzsch, Eric Myjer & Ralf Trapp eds., 2014) (noting a corresponding provision in Article VII).

148. Ralf Trapp, *Verification Annex, Part IV(A)*, *in* THE CHEMICAL WEAPONS CONVENTION: A COMMENTARY, *supra* note 147, at 511, 517.

establishing a preventive regime. It follows from this absolute ban on use that no lawful means of warfare exists involving such chemical weapons.[149] Nor can they be employed in belligerent reprisals, unlike in the Convention's predecessor, the 1925 Geneva Gas Protocol. The fact that "[t]he OPCW Member States represent about 98% of the global population and landmass, as well as 98% of the worldwide chemical industry" attests to a universally applied effective control and elimination of unlawful chemical substances with harmful effects on the natural environment in internal armed conflict.[150] The prohibition of chemical warfare may be said to have been already part of customary international law applicable to state conduct in the hostilities during non-international armed conflict. This is especially the case in light of widespread forbearance in state practice with firm evidence of *opinio juris* in U.N. resolutions[151] and international disarmament meetings, albeit on the reciprocal basis, even before the adoption of the Chemical Weapons Convention[152]—save the specific issues of chemical herbicides[153] and non-lethal chemical agents such as riot-control gas.[154]

Within the jurisdiction of the International Criminal Court, a criminal enforcement regime was established for the unlawful use of banned biological and chemical weapons, together with even more controversial nuclear weapons, but agreement to encompass the use of all weapons of mass destruction as a war crime proved to be too difficult.[155] Instead, Article 8(2)(b)(xvii) of the Rome Statute contains a provision defining as a war crime the "employ[ment of] poison and poisoned weapons" much like Article 23(a) of the 1907 Hague Regulation, while Article 8(2)(b)(xviii) classifies "employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices" in the wording of the 1925 Geneva Gas Protocol as a war crime.[156] Cottier argues, however, that such wording would seldom cover biological weapons and certainly exclude nuclear

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149. Andrea Gioia, *The Chemical Weapons Convention and its Application in Time of Armed Conflict*, *in* THE NEW CHEMICAL WEAPONS CONVENTION—IMPLEMENTATION AND PROSPECTS 379, 382–83 (M. Bothe, N. Ronzitti & A. Rosas eds., 1998).

150. *OPCW Member States*, OPCW, https://www.opcw.org/about-opcw/member-states/ (last visited Mar. 20, 2017). As of October 17, 2015, 192 states are parties to the Chemical Weapons Convention, and Israel has signed it but not yet ratified. *See Note by the Technical Secretariat: Status of Participation in the Chemical Weapons Convention as at 17 October 2015*, OCPW (Oct. 19, 2015), https://www.opcw.org/fileadmin/OPCW/S_series/2015/en/s-1315-2015_e_.pdf.

151. *See* Schindler & Toman, *supra* note 116, at 131.

152. Thilo Marauhn, *Chemical Weapons and Warfare*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW ¶ 22 (2010).

153. *See* Dinstein, *supra* note 40, at 538–39.

154. *See generally* James D. Fry, *Gas Smells Awful: U.N. Forces, Riot-Control Agents, and the Chemical Weapons Convention*, 31 MICH. J. INT'L L. 475 (2010).

155. Philippe Kirsch & Darryl Robinson, *Reaching Agreement at the Rome Conference*, *in* THE ROME STATUTE OF THE INTERNATIONAL CRIMINAL COURT: A COMMENTARY VOLUME I at 67, 79–80 (Antonio Cassese, Paola Gaeta & John R.W.D. Jones eds., 2002).

156. Rome Statute of the International Criminal Court art. 8, July 17, 1998, 2187 U.N.T.S. 90 [hereinafter Rome Statute].

weapons.[157] Indeed, it is suggested that recent interpretations of the phrases, "poisons or poisoned weapons" and "employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices" have tended to attach a more restrictive meaning in a way that leaves the large-scale use of lethal chemical and biological weapons banned under their respective conventions, out of criminal jurisdiction.[158] Nonetheless, by criminalizing these weapons within the established framework of international law in the 2010 Kampala Review Conference for the 1998 Rome Statute of the International Criminal Court, states intended to give a broad application to the prohibition in customary international law that their deployment during non-international conflict would be tantamount to offenses, "irrespective of whether the perpetrator's State has ratified this addition to the Statute if the activities themselves breach international law and amount to war crimes."[159]

2. Conventional Weapons

The indiscriminate and disproportionate nature of certain conventional weapons limits their humane use under humanitarian law because it violates the fundamental principle that "[t]he right of a belligerent to adopt means of warfare is not unlimited."[160] Unable to distinguish between targets, conventional warfare often causes superfluous harmful effects on the natural environment.[161] Therefore, the use of otherwise lawful weapons in armed conflict needs to be regulated to control and reduce their destructive potential.[162] The 1980 Convention on Certain Conventional Weapons[163] was the first treaty cognizant of such deleterious environmental consequences, prohibiting the employment of certain methods and means of warfare in order to protect the natural environment,[164] thus including environmental protection with the other traditional, well-established legal principles of armed conflict such as military necessity, humanity, discrimi-

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157. Michael Cottier, *Article 8 para. 2 (b) (xvii)-(xx)*, *in* COMMENTARY ON THE ROME STATUTE OF THE INTERNATIONAL CRIMINAL COURT: OBSERVERS' NOTES, ARTICLE BY ARTICLE 239, 241–42 (Otto Triffterer ed., 1999).

158. *See* Mathews, *supra* note 134, at 227.

159. Bill Boothby, *Differences in the Law of Weaponry When Applied to a Non-International Armed Conflict*, 42 ISR. Y.B. ON HUM. RTS. 83, 86 (2012); *see* Assembly of States Parties Res. RC/Res.6, annex III (June 11, 2010) https://treaties.un.org/doc/source/docs/RC-Res.6-ENG.pdf.

160. GARY D. SOLIS, THE LAW OF ARMED CONFLICT: INTERNATIONAL HUMANITARIAN LAW IN WAR 734 (2d ed. 2016).

161. William H. Boothby, *Weapons, Prohibited*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW ¶ 8–12 (2015) (citing the superflous injury principle and a rule prohibiting identifiable "indiscriminate weapons" as part of customary international law).

162. *Id*.

163. 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, Oct. 10, 1980, 1342 U.N.T.S. 171, 19 I.L.M. 1523 [hereinafter Convention on Certain Conventional Weapons].

164. "*Also recalling* that it is prohibited to employ methods and means warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment." *Id.* pmbl. para. 4.

nation, and proportionality.[165] Although no specific provision is devoted to environmental protection in the Convention itself—it being an umbrella agreement consisting merely of a preamble and provisions for implementation, dissemination, and review—substantive obligations are contained in five additional protocols specifically regulating certain types of fragmentation weapons.[166] Of those five, three protocols are potentially of significance regarding protection of the natural environment.

Of special importance, a 2001 amendment to Article 1(2) of the Convention on Certain Conventional Weapons extended the scope of the Convention and its Protocols to cover all non-international armed conflicts referred to in Article 3 common to the Geneva Conventions of August 12, 1949.[167] With this extension, the 2005 International Committee of the Red Cross ("ICRC") Customary International Humanitarian Law Study adopted an approach, reminiscent of the *Tadić* decision,[168] to state practice narrowing the distinction between customary rules applicable to international versus non-international armed conflicts.[169] The ICRC Study therefore recognizes the customary status of prohibitions and restrictions in the protocols as applicable to non-international armed conflict.[170] Nonetheless, there remains considerable doubt as to whether the prohibitions of the Protocol of the Convention on Certain Conventional Weapons can safely be extended to apply in armed conflicts internal to a non-party state as a matter of custom based somehow on insufficient state practice to the contrary.[171] For state parties that have not yet ratified the 2001 scope extension to the Convention, the Protocols—other than Amended Protocol II of the Convention—apply only to international armed conflicts. Therefore, not all state parties are under the same restrictions in terms of internal armed conflicts. Boothby rightly criticizes the 2005 ICRC Study's reliance "on the relatively recently adopted [Convention] protocols and on the [Convention] extension of scope" to apply customary weapons law to non-international armed conflict.[172]

Protocol III of the Convention on Certain Conventional Weapons concerns the use of incendiary weapons, explicitly outlawed due to concerns over irreversible

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165. *See* KOPPE, *supra* note 39, at 187.

166. Convention on Certain Conventional Weapons, *supra* note 163; HILAIRE MCCOUBREY, INTERNATIONAL HUMANITARIAN LAW: MODERN DEVELOPMENTS IN THE LIMITATION OF WARFARE 233 (1998).

167. *See* Sossai, *supra* note 122, at 200.

168. Prosecutor v. Tadić, Case No. IT-94-1-I, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, (Int'l Crim. Trib. for the Former Yugoslavia Oct. 2, 1995).

169. *See* HENCKAERTS & DOSWALD-BECK, *supra* note 79, at xxxv.

170. *Id.* at 262.

171. David Turns, *Weapons in the ICRC Study on Customary International Humanitarian Law*, 11 J. CONFLICT & SEC. L. 201, 209–11 (2006); *see also* Steven Heines, *Weapons, Means and Methods of Warfare*, *in* PERSPECTIVES ON THE ICRC STUDY ON CUSTOMARY INTERNATIONAL HUMANITARIAN LAW 258, 262–63 (Elizabeth Wilmshurst & Susan Breau eds., 2007); Boothby, *supra* note 161, ¶ 32.

172. *See* Boothby, *supra* note 159, at 93.

ecological effects.[173] Forests or other kinds of plant cover cannot be made the object of an incendiary weapon attack, except when such natural elements are used to cover, conceal, or camouflage combatants or other military objectives, or are themselves military objectives.[174] Some commentators are critical of the exceptions "covering all conceivable motives" of a belligerent to attack, thus rendering the prohibition practically insignificant.[175] Yet, while "military necessity" seems to allow widespread destruction of forest and plant cover, the legitimacy of targeting such environmental components should still be subject to proportionality.[176] Critics also point to the narrow definition of "incendiary weapons," which seems to exclude many weapons typically considered incendiary, such as napalm, flamethrowers, and even perhaps white phosphorus.[177] Still, significance lies in what the Protocol intends to do, which is to protect "a specific portion of the environment from a particular type of weapon."[178] As it is generally agreed that Protocol III does not amount to customary international law,[179] it offers merely a qualified prohibition on environmental damage caused by the use of incendiary weapons during internal armed conflict.

Protocol II limits the use of mines, booby-traps, and other devices such as manually – emplaced improvised explosive devices ("IEDs"),[180] when present in large enough quantities over a conflict zone to pose "a serious and constant threat to the population."[181] Because indiscriminate use of hidden, unexploded munitions can make areas inaccessible and unusable for humans, present life-threatening risks to animals, and may cause direct environmental damage if "they contain toxic chemicals or heavy metals,"[182] the Protocol extends protection to the natural environment. While the Protocol does not categorically ban such weapons, it defines the disproportionate and indiscriminate ways in which their use cannot harm civilian populations or objects. It also requires the recording and

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173. Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the 1980 CCW Convention), Oct. 10, 1980 [hereinafter CCW Protocol III], *reprinted in* Schindler & Toman, *supra* note 116, at 210; *see* Antoine, *supra* note 52, at 529 (citing a report of the U.N. General Secretary dated 1973 on napalm and other weapons and all aspects of their possible use).

174. CCW Protocol III, *supra* note 173, art. 2(4).

175. FRITS KALSHOVEN & LIESBETH ZEGVELD, CONSTRAINTS ON THE WAGING OF WAR: AN INTRODUCTION TO INTERNATIONAL HUMANITARIAN LAW 180 (4th ed. 2011).

176. *See* Schmitt, *supra* note 31, at 90.

177. *See* Tarasofsky, *supra* note 127, at 55; *see also* Sossai, *supra* note 122, at 201–02 (discussing the unlawful use of white phosphorus). *See generally* Roman Reyhani, *The Legality of the Use of White Phosphorus by the United States Military During the 2004 Fallujah Assaults*, 10 U. PA. J. L. & SOC. CHANGE 1, 45 (2007) (finding the use of white phosphorus in Iraq unlawful).

178. Eric Talbot Jensen, *The International Law of Environmental Warfare: Active and Passive Damage During Armed Conflict*, 38 VAND. J. TRANSNAT'L L. 145, 174 (2005).

179. *See* Dinstein, *supra* note 40, at 537.

180. Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices (Protocol II to the 1980 CCW Convention), Oct. 10, 1980, *reprinted in* Schindler & Toman, *supra* note 116, at 191.

181. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 411.

182. A.P.V. ROGERS, LAW ON THE BATTLEFIELD 222 (3d ed. 2012).

publication of the locations of such weapons, calling for international cooperation in their removal after the cessation of active hostilities to restore the environment to its previous state.

The 1992 amendment to Protocol II extends its scope to situations referred to in common Article 3, and requires state parties to establish a criminal responsibility regime for individuals who deliberately misuse anti-personnel mines and booby-traps.[183] It is suggested that Protocol II is based on an established military doctrine, and therefore, has customary status.[184] Its customary evolution has been bolstered by an ever-growing *opinion juris* of states dissatisfied with the continued widespread use of mines to bring even more stringent prohibitions, first, on anti-personnel landmines lacking detectability and self-destruction/self-deactivation mechanisms, then on remotely delivered mines in the 1996 Amended Protocol,[185] and finally a total ban on the use of anti-personnel landmines in the 1997 Ottawa Treaty.[186] The 1997 Ottawa Treaty imposes a general obligation on each state party to never under any circumstances use, develop, produce, otherwise acquire, stockpile, retain, or transfer anti-personnel mines to anyone directly or indirectly.[187] The complete ban also applies to non-international armed conflicts, because parties must destroy or ensure the destruction of all anti-personnel mines in mined areas under their jurisdiction or control within the prescribed time limit.[188] With 163 state signatories,[189] the Treaty facilitates an effective, preventive, and remedial means to protect the environment against the deleterious effects of anti-personnel mines in practice.[190] This, in turn, contributes to the customary formation of the absolute prohibition on their use in international law.[191]

Protocol V of 2003, annexed to the 1980 Convention on Certain Conventional Weapons, regulates explosive remnants of warfare which can produce "permanent harmful effects on humans, animals, vegetation, water, land and the ecosystem as a whole" when they have chemicals or heavy metals.[192] Even when

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183. *See* SOLIS, *supra* note 160, at 738.

184. *See* Boothby, *supra* note 161, ¶ 32.

185. Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices, as Amended on 3 May 1996, *reprinted in* Schindler & Toman, *supra* note 116, at 196.

186. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, Sept. 18, 1997, 2056 U.N.T.S. 35597, 36 I.L.M. 1507 [hereinafter Ottawa Treaty], *reprinted in* Schindler & Toman, *supra* note 116, at 285; *see* BRYDEN, *supra* note 124, at 43–49.

187. Ottawa Treaty, *supra* note 186.

188. *Id*. art. 5.

189. By 2016, 162 state parties and the Marshall Islands were state signatories, but the United States, Russia, China, India, Pakistan, and Israel are not parties to the 1997 Ottawa Treaty. *See* Ottawa Treaty, *supra* note 186.

190. *See* Schmitt, *supra* note 44, at 292.

191. YORAM DINSTEIN, THE CONDUCT OF HOSTILITIES UNDER THE LAW OF INTERNATIONAL ARMED CONFLICT 69 (2004).

192. Protocol on Explosive Remnants of War (Protocol V to the 1980 CCW Convention), Nov. 28, 2003; *see* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 411.

they do not contain such chemicals or heavy metals, the vast amount of ordnance that fails to detonate or is abandoned in and around the battlefield may still cause long-lasting and widespread damage to the human and natural environment.[193] The Protocol does not prohibit the use, stockpiling, or production of specific weapons systems capable of leaving behind unexploded munitions, but rather addresses preventive and post-conflict measures. It requires state parties to improve the reliability as well as the technical and design characteristics of explosive ordnance, "to clear explosive remnants of war, to take measures to protect civilians from the effects of these weapons," and to provide international assistance and cooperation in implementing the Protocol.[194] It applies in international and non-international armed conflict, using the term "parties to an armed conflict" in reference to both non-state armed groups and "[s]tates parties."[195]

Of concern, however, no consensus could be reached on the inclusion of binding obligations in the Protocol banning the use, production, procurement, stockpiling, or transfer of cluster munitions.[196] A cluster weapon is particularly harmful to the environment because it is "designed as an area weapon, and work[s] by scattering hundreds, if not thousands, of sub-munitions over a particular target"—sub-munitions with notoriously high rates of failure to detonate as intended.[197] The resulting lack of prompt and substantive measures in Protocol V led many dissatisfied states to embark upon concurrent negotiations, through the "Oslo process" initiated by Norway, to adopt a comprehensive prohibition on cluster weapons in the 2008 Convention on Cluster Munitions, largely modeled on the 1997 Ottawa Treaty on anti-personnel mines.[198] With the "never under any circumstances" formula in Article 1(1), the Convention imposes a general obligation on each state party not to use, develop, produce, otherwise acquire, stockpile, retain, or transfer to anyone cluster munitions; or to assist, encourage, or induce anyone to engage in any prohibited activity as such. The absolute formula results in a total ban applicable at all times, both during peacetime and armed conflict, whether international or non-international.[199] A

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193. Louis Maresca, *Regulating Explosive Remnants of War*, 5 Y.B. INT'L HUMANITARIAN L. 360, 363–65 (2002) (explaining reasons why ordnance fails to explode as intended and the consequences).

194. Louis Maresca, *A New Protocol on Explosive Remnants of War: The History and Negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons*, 86 INT'L REV. RED CROSS 815, 815 (2004).

195. *Id*. at 823–24.

196. Nout van Woudenberg & Wouter Wormgoor, *The Cluster Munitions Convention: Around the World in One Year*, 11 Y.B. INT'L HUMANITARIAN L. 391, 393–94 (2008).

197. *See* Hulme, *supra* note 68, at 596.

198. *See* 2008 Convention on Cluster Munitions, May 30 2008, 2688 U.N.T.S. 29. *See generally* Virgil Wiebe, John Borrie & Declan Smyth, *Introduction*, *in* THE CONVENTION ON CLUSTER MUNITIONS: A COMMENTARY 1–36 (Gro Nystuen & Stuart Casey-Maslen eds., 2010).

199. Virgil Wiebe, Declan Smyth & Stuart Casey-Maslen, *Article 1. General Obligations and Scope of Application*, *in* THE CONVENTION ON CLUSTER MUNITIONS: A COMMENTARY 95, 97 (Gro Nystuen & Stuart Casey-Maslen eds., 2010).

state party that fails to comply with the clearance and destruction obligations within an initial ten-year period has to provide information on the humanitarian, social, economic, and environmental implications of the requested extension, as part of a long and detailed list of conditions similar to that of the 1997 Ottawa Treaty.[200]

Ultimately, the 2008 Convention provides indirect protection of the environment against the harmful effects of unexploded cluster munitions and the toxic debris they leave behind, by its comprehensive prohibition regime and post-conflict remediation of contaminated areas.[201] However, its effectiveness will depend on the universal acceptance and practical implementation of the Convention. Since entering into force in 2010, 119 states have signed the Convention,[202] but it has yet to attract the key users, producers, and stockpiling states, such as the United States, Russia, China, and Israel.[203] Therefore, the parallel Protocol V review process remains an equally important route to achieving an accepted worldwide control regime for the use of cluster munitions.[204]

3. Environmental Modification Techniques

The 1976 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques ("ENMOD")[205] aims to limit the use of environmental forces as weapons of warfare.[206] Strictly speaking, it is not an arms control or disarmament treaty,[207] but rather it more accurately relates to methods and means of warfare under "Hague Law."[208] It was adopted against the background of growing environmental awareness and public disquiet over harmful environmental modification techniques that the United States widely employed in the Vietnam War.[209] Negotiated concurrently with Additional

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200. 2008 Convention on Cluster Munitions, *supra* note 198, art. 4(6)(h).

201. GENEVA INT'L CTR. FOR HUMANITARIAN DEMINING & IMPLEMENTATION SUPPORT UNIT, CONVENTION ON CLUSTER MUNITIONS, A GUIDE TO CLUSTER MUNITIONS 104 (3d. ed. 2016) (noting awareness of the risks from mines, unexploded ordnance, and/or abandoned munitions, and encouraging behavior that reduces risks to people, property, and the environment).

202. As of June 14, 2016, a total of 119 states have joined the Convention, as 100 states parties and 19 signatories. *Convention Status by Region*, THE CONVENTION ON CLUSTER MUNITIONS, http://www.clusterconvention.org/the-convention/convention-status/ (last visited Nov. 16, 2016).

203. *Id.*; *see* Karen Hulme, *Weapons*, *in* RESEARCH HANDBOOK ON INTERNATIONAL CONFLICT AND SECURITY LAW: JUS AD BELLUM, JUS IN BELLO, AND JUS POST BELLUM 315, 331–32 (Nigel D. White & Cristian Henderson eds., 2013).

204. Hulme, *supra* note 203, at 331–32.

205. ENMOD, *supra* note 34.

206. *See* Harry H. Almond, *The Use of the Environment as an Instrument of War*, 2 Y.B. OF INT'L ENVTL. L. 455, 456, 464 (1991) ("If the environment is invoked as a weapon of war, the environment itself is likely to become the target of attack and the outcome is likely to be irreversible damage.").

207. *See* KOPPE, *supra* note 39, at 126.

208. Michael N. Schmitt, *The Environmental Law of War: An Invitation to Critical Reexamination*, 6 U.S.A.F. ACAD. J. LEGAL STUD. 237, 260–61 (1996).

209. *See* Falk, *supra* note 35, at 34–35.

Protocol I, ENMOD is the first international agreement to directly deal with the environmental aspects of warfare, disallowing any deliberate manipulation of natural processes during hostilities in order to prevent catastrophic environmental consequences for human welfare.[210] Article I requires state parties "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."[211] An "environmental modification technique" is defined in Article II as "any technique for changing—through the 'deliberate manipulation' of natural processes—the dynamics, composition or structure of space or of the Earth, including its atmosphere, lithosphere, hydrosphere and biota," or of outer space.[212] By implication, such environmental modification must have extensive or profound consequences as the Consultative Committee of Experts explained in a non-exhaustive list, and could include phenomena such as "earthquakes; tsunamis; an upset in the ecological balance of a region; changes in weather patterns . . . ; changes in climate patterns; changes in ocean currents; changes in the state of the ozone layer; and changes in the state of the ionosphere."[213] Any environmental modification technique creating the required degree of such natural phenomenon would trigger the prohibition.

A deconstructive analysis of the prohibition reveals some limitations to how effectively it can protect the natural environment. In fact, ENMOD's primary purpose is not environmental protection per se, but the prevention of damages and injuries inflicted on opposing states using the environment as a weapon.[214] If an environmental modification technique causes no direct harm itself,[215] for example, if its use merely facilitates the destructive and injurious effects of conventional weapons, it falls outside the ambit of prohibition.[216] Therefore, the prohibition is contingent upon two conditions. First, there must be military or other hostile use of an environmental modification technique—either offensive or defensive.[217] Thus, non-hostile uses are not covered by ENMOD even though they actually fulfill the second requirement of destruction, damage, or

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210. *See* Breau, *supra* note 54, at 618–19.

211. ENMOD, *supra* note 34, art. I(1).

212. ENMOD, *supra* note 34, art. 2; *see* Arthur H.Westing, *Environmental Warfare: An Overview*, *in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 3–10 (Arthur H. Westing ed., 1984).

213. *See* Schindler & Toman, *supra* note 116, at 168.

214. ENMOD, *supra* note 34; *see* Tarasofsky, *supra* note 127, at 47.

215. *See* Verwey, *supra* note 42, at 16–17 (differentiating the abuse of the environment as a weapon and the manipulation of a natural process as an instrument of geophysical warfare—which may or may not have a deleterious effect on the environment—contrary to the common misconception that ENMOD only addresses the latter).

216. Jozef Goldblat, *The Environmental Modification Convention of 1977: An Analysis*, *in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 53, 54 (Arthur H. Westing ed., 1984).

217. Jerry Muntz, *Environmental Modification*, 19 HARV. INT'L L.J. 384, 388 (1978).

injury to another state party.[218] Proscribed environmental modification techniques are those that entail deliberate manipulation of natural processes.[219] Yet, such "geophysical warfare"[220] must be employed with hostile intent, that is, with the deliberate objective to destroy, damage, or injure the adversary without necessarily targeting its environment per se.[221] Hence, the use of the environment as a weapon remains merely the means to an end.

As an unintentional ancillary consequence of warfare, collateral environmental damage escapes proscription.[222] Also excluded is the use of environmental modification techniques for peaceful purposes, however, such use is subject to international law.[223] Research, development, testing, and production of modification techniques are also not covered, even when done with intentions of military application, because verification of such activities with dual applicability to civilian and military uses was thought impractical.[224] However, while threatening the use of environmental modification techniques does not seem to be positively prohibited under the Convention, it could be considered by implication within the prohibition on the use of force.[225] Furthermore, if a state were to carry out a deliberate manipulation of natural processes but *not* with the intention to cause the requisite level of destruction to another state party, it is argued that the attacking state should still be held "responsible for any damage which [it] intended to cause and any excess damage which was reasonably foreseeable."[226] It would not be easy to establish a "should have known" level of intention in a complex setting of multiple attacks, each one of which alone would fall short of the requisite threshold of damage while their cumulative effects may not.[227] To Schmitt, an intent element may function better in such circumstances as "the connective variable" to link individual attacks to a single integrated plan or a common, or closely related, result.[228]

ENMOD only prohibits environmental modification techniques that can generate "widespread, long-lasting or severe effects," but in doing so, seems to allow legitimization of any military preparations for their use under the damage

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218. Roman Reyhani, *Protection of the Environment During Armed Conflict*, 14 MO. ENVTL L. & POL'Y REV. 323, 326 (2006).

219. John H. McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, 6 HAGUE Y.B. INT'L L. 75, 77 (1993).

220. *Id*.

221. *See* Domínguez-Matéz, *supra* note 125, at 101.

222. *See* Tarasofsky, *supra* note 127, at 47.

223. *See* Goldblat, *supra* note 216, at 58.

224. *See* KOPPE, *supra* note 39, at 138–39.

225. *See* Goldblat, *supra* note 216, at 54.

226. *See* Leibler, *supra* note 65, at 83.

227. S*ee* Yuzon, *supra* note 75, at 807 (stressing the ambiguity in the subjective aspect of determining when a breach of duty actually occurs).

228. *See* Schmitt, *supra* note 31, at 84.

threshold.[229] Although the quantum of damage is put into words similar to that of Protocol I Additional to the Geneva Convention, a critical nuance in disjunctive phrasing crucially means that the qualifying adjectives stated in the alternative using "or" make the presence of only one of the effects sufficient for prohibition to become applicable.[230] On the contrary, with "and" in Protocol I, the effects are listed cumulatively, requiring the resultant damage to meet all three qualifications.[231] It follows that ENMOD's threshold for damage is lower than that of Protocol I.[232] The Conference of the Committee on Disarmament Understanding on Article I interprets "widespread" as "encompassing an area on the scale of several hundred kilometers," "long-lasting" as "lasting for a period of months, or approximately a season," and "severe" as "involving serious or significant disruption or harm to human life, natural and economic resources or other assets."[233] In spite of the fact that both ENMOD and Protocol I were negotiated simultaneously, the drafters of the former took the view that the interpretation was intended exclusively for the Convention, and not meant to prejudice the interpretation of the terms used in Protocol I in any way.[234] This approach was echoed in Protocol I, as its drafters interpreted "long-term" rather differently as a matter of decades, making reference to "twenty or thirty years" as being a minimum, while thinking that "battlefield damage incidental to conventional warfare" would be outside the scope of the prohibition.[235]

Despite limited practical utility,[236] unlike Protocol I (which only applies to armed conflict), ENMOD prohibits the military or hostile use of environmental modification techniques as a weapon—both in times of peace and armed conflict—if the requisite level of destruction, damage, or injury is inflicted on a state party because of such use. However the ban on such techniques applies generally, without distinguishing the types of armed conflicts to which it purports to apply, and therefore should be observed in all circumstances.[237] In the same vein, some commentators suggest that ENMOD's scope of application could be extended to cover any use of environmental modification techniques as a weapon in internal armed conflict, provided that a transboundary impact on another state

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229. ENMOD, *supra* note 34, art. 1; *see* Muntz, *supra* note 217, at 385; *see also* Goldblat, *supra* note 216, at 57.

230. *Compare* Protocol I, *supra* note 33, art. 35, *with* ENMOD, *supra* note 34, art. 1. *See also* Dinstein, *supra* note 40, at 541.

231. *See* Dinstein, *supra* note 40, at 541.

232. See KOPPE, *supra* note 39, at 135.

233. *See* Schindler & Toman, *supra* note 116, at 168.

234. *Id*.

235. *See* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 417.

236. Andy Rich, *The Environment: Adequacy of Protection in Times of War*, 12 PENN ST. ENVTL. L. REV. 445, 453 (2004); *see also* Hulme, *supra* note 131, at 65–66.

237. James A. Burger, *Environmental Aspects of Non-International Conflicts: The Experience in Former Yugoslavia*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT, 69 INT'L L. STUD. 333, 339 (1996).

party occurs.[238] In reality, however, the requirement that both the perpetrator and victim be states would make its application feasible only "in armed conflicts between States but not in an armed conflict that is internal to a single State."[239] Because its application is limited to state parties only, caution should be exercised in interpreting the lack of reported incidences in the ENMOD monitoring process as evidence of state practice in support of customary formation of the prohibition applicable to internal as well as international armed conflicts.[240]

In sum, prohibition of weapons and limitations on methods and means of warfare primarily aim at international armed conflict, and, for the most part, remain silent in the case of internal armed conflict. Thus, it is far from easy to determine the effectiveness of arms control regimes in practice in terms of either providing indirect environmental protection or their application in the context of internal conflict with any certainty.

II. ENFORCING THE LAW

As with other areas of international law, the law of armed conflict suffers from the inherent weaknesses of decentralized legislative, adjudicative, and enforcement power,[241] leaving the states to make, interpret, and administer the law.[242] Historically such a lack of centralization required states to exercise their vested sovereign powers through unilateral self-help measures in order to safeguard their own rights.[243] To that effect, the traditional law of war seems to have devised a system of enforcement based on unilateral measures of self-help, which has enabled states to resort to reprisal, hostage-taking, and the punishment of war crimes committed by enemy soldiers.[244] Although hostage-taking is forbidden,[245] and armed reprisals in peacetime are no longer considered a lawful means of redress,[246] the same cannot be said with certainty regarding belligerent repri-

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238. *See* Bruch, *supra* note 28, at 703; *see also* Simonds, *supra* note 51, at 187; Dinstein, *supra* note 40, at 540.

239. *See* Boothby, *supra* note 159, at 94. *But see* Jozef Goldblat, *Legal Protection of the Environment Against the Effects of Military Activities*, 22 BULL. OF PEACE PROPOSALS 399, 403–04 (1991) (noting that it is difficult, if not impossible, to circumscribe the effects of an environmental modification technique within definite geographical boundaries so as not to injure a neighboring state party).

240. *But see* Reyhani, *supra* note 218, at 326.

241. G.I.A.D. Draper, *The Implementation and Enforcement of the Geneva Conventions of 1949 and of the Two Additional Protocols of 1978*, 164 RECUEIL DES COURS 9, 9 (1979) (defining enforcement as "the collection of mechanisms and rules available to the law of war to secure the restoration of observance when that law has been violated").

242. *See generally* Bert V.A. Röling, *Aspects of the Criminal Responsibility for Violations of the Laws of War*, *in* THE NEW HUMANITARIAN LAW OF ARMED CONFLICT 199 (Antonio Cassese ed., 1979).

243. *See* MATH NOORTMANN, ENFORCING INTERNATIONAL LAW: FROM SELF-HELP TO SELF-CONTAINED REGIMES 2–3 (2005).

244. 2 L. OPPENHEIM, INTERNATIONAL LAW: A TREATISE 557–95 (Hersch Lauterpacht ed., 1952).

245. *See* Draper, *supra* note 241, at 33–34.

246. *See* NOORTMANN, *supra* note 243, at 38.

sals.[247] Modern humanitarian law, however, has since developed complementary means of enforcement, such as compensation mechanisms,[248] designation of Protecting Powers,[249] and international fact-finding with a view of facilitating good offices.[250] Amongst all of the traditional unilateral measures of self-help that long outlived their usefulness,[251] it is the individual repression of war crimes by prosecution and punishment at both the national and international levels that increasingly emerges as a promising means of enforcement.[252]

A. ENFORCEMENT THROUGH CRIMINALIZATION

Historically, certain traditionally recognized humanitarian limitations on the conduct of wartime hostilities compelled penal sanctions against individuals committing criminal acts in violation of the laws and customs of war.[253] However, it was the mass atrocities of World War II that prompted international prosecution of those responsible[254] due to the demands for retribution by victims who refused to let such horrific crimes go unpunished.[255] This moral approach to criminalization revolved around the principle of humanity and solely focused on human suffering; therefore, prosecution did not include criminal offenses against even the most egregious wartime harms to the environment.[256] Environmental aspects of warfare were not even addressed directly until 1976 and 1977 with the ENMOD Convention and Additional Protocol I.[257] And whether Protocol I's

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247. FRITS KALSHOVEN, *Belligerent Reprisals Revisited*, *in* REFLECTIONS ON THE LAW OF WAR: COLLECTED ESSAYS 759–92 (2007); *see also* Shane Darcy, *Reciprocity and Reprisals*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 492, 497–501 (Rain Liivoja & Tim McCormack eds., 2016).

248. Silja Vöneky, *Implementation and Enforcement of International Humanitarian Law*, *in* THE HANDBOOK OF INTERNATIONAL HUMANITARIAN LAW 647, 654–55 (Dieter Fleck ed., 2013).

249. *See generally* Georges Abi-Saab, *The Implementation of Humnitarian Law*, *in* THE NEW HUMANITARIAN LAW OF ARMED CONFLICT 196, 197–220 (Antonio Cassese ed., 1979).

250. *See generally* J. Ashley Roach, *The International Fact-Finding Commission: Article 90 of Protocol I Additional to the 1949 Geneva Conventions*, *in* A MANUAL OF INTERNATIONAL HUMANITARIAN LAWS 638–63 (Naorem Sanajaoba ed., 2004).

251. Antonio Cassese, *On the Current Trends Towards Criminal Prosecution and Punishment of Breaches of International Humanitarian Law*, 9 EUR. J. INT'L L. 2, 3–4 (1998).

252. Yves Sandoz, *The Dynamic but Complex Relationship between International Penal Law and International Humanitarian Law*, *in* THE LEGAL REGIME OF THE INTERNATIONAL CRIMINAL COURT 1049, 1049 (José Doria, Hans-Peter Gasser & M. Cherif Bassiouni eds., 2009).

253. *See generally* Timothy L.H. McCormack, *From Sun Tzu to the Sixth Committee: The Evolution of an International Criminal Law Regime*, *in* THE LAW OF WAR CRIMES: NATIONAL AND INTERNATIONAL APPROACHES 31 (Timothy L.H. McCormack & Gerry J. Simpson eds., 1997).

254. INTRODUCTION TO INTERNATIONAL CRIMINAL LAW 549 (M. Cherif Bassiouni ed., 2d ed. 2012).

255. Richard Overy, *The Nuremberg Trials: International Law in the Making*, *in* FROM NUREMBERG TO THE HAGUE: THE FUTURE OF INTERNATIONAL CRIMINAL JUSTICE 1–10 (Philippe Sands ed., 2003).

256. Julian Wyatt, *Law-Making at the Intersection of International Environmental, Humanitarian and Criminal Law: The Issue of Damage to the Environment in International Armed Conflict*, 92 INT'L REV. RED CROSS 593, 605 (2010).

257. *Compare* Frédéric Mégret, *The Case for a General International Crime Against the Environment*, *in* SUSTAINABLE DEVELOPMENT, INTERNATIONAL CRIMINAL JUSTICE, AND TREATY IMPLEMENTATION 50, 51 (Sébastien

prohibition on methods and means of warfare causing widespread, long-term, and severe damage to the natural environment results in international criminal liability is debatable insofar as international armed conflicts are concerned.[258] Yet the absence of a comparable provision in Protocol II deprives the natural environment of direct protection in internal armed conflict. Be that as it may, there are compelling arguments for international criminalization of environmental damage during non-international armed conflict, in connection with individual penal responsibility.

As far as international individual criminal responsibility is concerned, the proposition that "criminal liability in international law only arises for individuals" who violate their international duties[259] is well supported by the Nuremberg International Military Tribunal's dictum, "crimes against international law are committed by men, not by abstract entities, and only by punishing individuals who commit such crimes can the provisions of international law be enforced."[260] It is thus argued that criminalization of environmental offenses primarily committed by individuals is an ideal means of repression within context of international criminal law, "especially if states come to see themselves as the guarantors of a certain global public interest."[261] Behind that common interest, a possible rationale for criminalization of environmental degradation is sought in the articulation of punishment as an appropriate sanction in terms of retribution, deterrence, and rehabilitation.[262] While retribution serves as satisfaction for the victim's need for justice—because punishing the perpetrator rectifies the moral balance—the purpose of prosecution and punishment deters others from committing future crimes.[263] Both the International Criminal Tribunal for the Former Yugoslavia in the *Erdemović* case and the International Criminal Tribunal for Rwanda in the *Rutaganda* case have affirmed that international criminal responsibility for violations of international humanitarian law under their jurisdiction entails a degree of punishment and deterrence in international and non-international armed conflict.[264]

Jodoin & Marie Claire Cordonier Segger eds., 2013) (arguing for it), *with* René Provost, *International Criminal Environmental Law*, *in* THE REALITY OF INTERNATIONAL LAW 439, 447 (Guy S. Goodwin-Gill & Stefan Talmon eds., 1999) (arguing against it).

258. Mégret, *supra* note 257, at 51.

259. Robert Cryer, *The Doctrinal Foundations of International Criminalization*, *in* 1 INTERNATIONAL CRIMINAL LAW 107, 121 (M. Cherif Bassiouni ed., 3d ed. 2008).

260. International Military Tribunal Nuremberg, *Judgment and Sentences*, 41 AM. J. INT'L L. 172, 221(1947).

261. *See* Mégret, *supra* note 257, at 54.

262. *See* Provost, *supra* note 257, at 440.

263. Mark A. Drumbl, *A Hard Look at the Soft Theory of International Criminal Law*, *in* THE THEORY AND PRACTICE OF INTERNATIONAL CRIMINAL LAW 1, 11–15 (Leila Nadya Sadat & Michael P. Scharf eds., 2008).

264. Prosecutor v. Erdemović, Case No. IT-96-22-T, Sentencing Judgment, ¶¶ 64–66 (Trial Chamber I, Int'l Crim. Trib. for the Former Yugoslavia Nov. 29, 1996); Prosecutor v. Rutaganda, Case No. ICTR-96-3-A, ¶ 456 (Appeals Chamber, Int'l Crim. Trib. for Rwanda May 26, 2003).

Environmental crimes committed in internal armed conflicts may be equally offensive to the vital interests and "certain shared values which the international community has come to recognize as being so important that penal sanctions must be employed."[265] But if the historical development of humanitarian law is of any indication, Bothe posits that state practice casts serious doubt on the utility of criminal law as an effective means of enforcement to deter potential perpetrators.[266] A number of practical obstacles of a largely political nature impede prosecution and punishment, simply because successful application in international relations depends on interstate cooperation.[267] Notwithstanding inherent issues surrounding the effectiveness of a deterrent strategy in criminal law,[268] individual criminal responsibility fundamentally differs from state responsibility. The former aims "to enforce the obligations of *individuals* under international humanitarian law, whereas the [latter] concentrate[s] on the enforcement of the obligations of *states*."[269] By its very nature, internationalization of the penal repression of serious violations of international humanitarian law runs against state sovereignty by complementing or substituting a state's criminal jurisdiction with a universal criminal jurisdiction, thus requiring cooperation among states often reluctant to employ national penal enforcement for that purpose.[270] Nevertheless, the end of the Cold War and the establishment of ad hoc criminal tribunals for the atrocities in Yugoslavia and Rwanda marked a clear shift towards forming the *opinio juris* and an international consensus on the need to hold those who violate humanitarian law internationally accountable. It is by this process that further criminalization as a viable means of enforcement was eventually achieved through the international institutionalization of the penal repression of, *inter alia*, war crimes under the jurisdiction of the International Criminal Court.[271]

B. ENVIRONMENTAL DAMAGE IN INTERNAL ARMED CONFLICT: A WAR CRIME?

Criminalizing violations of the laws and customs of war has its roots in the Lieber Code of 1863, which provided for the criminal punishment of unlawful

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265. Byung-Sun Cho, *Emergence of an International Environmental Criminal Law?*, 19 U.C.L.A. J. ENVTL. L. & POL'Y 11, 14–15 (2000).

266. *See* Bothe, *supra* note 14, at 473–74.

267. *See id*.

268. *See generally* Paul H. Robinson & John M. Darley, *The Role of Deterrence in the Formulation of Criminal Law Rules: At Its Worst When Doing Its Best*, 91 GEO. L. J. 949 (2003).

269. *See* Cassese, *supra* note 251, at 4.

270. *Id*. at 11–17 ("In spite of these problems, the most effective means of enforcing international humanitarian law remains the prosecution and punishment of offenders within national or international criminal jurisdictions. I will go further and say that the rule of international humanitarian law depends on its enforcement through the prosecution and punishment of its offenders.").

271. Theodor Meron, *Is International Law Moving Towards Criminalization?*, 9 EUR. J.INT'L L. 18, 21–23 (1998).

conduct—broadly based on humanity, honor, and chivalry—during hostilities.[272] Prior to World War II, international instruments contained no explicit penal sanctions against wartime offenses, suggesting that it was exclusively for belligerent states to legislate for "the criminalization of violations of the rules of *jus in bello*" in their national laws.[273] Individual criminal responsibility for war crimes arose in the 1919 Treaty of Versailles, with the traditional definition of "war crimes" as "violations of laws and customs of war" first appearing in the Statute of the International Military Tribunal as an attribution of criminal responsibility to individuals committing egregious acts in time of armed conflict.[274] Rather than "war crimes," the Geneva Conventions of 1949 coined such acts when committed against persons or property protected by the Convention as "grave breaches," and listed them in common Articles 50, 51, 130, and 147, further extended by Additional Protocol I to include in paragraphs 3 and 4 of Article 85 new violations contained in the Hague Regulations.[275] In this system, which treats war crimes as grave breaches requiring criminal punishment, states must exercise universal jurisdiction over those responsible for violations when found within their territories.[276] Enforcement further entails an obligation to extradite or prosecute those responsible, *aut dedere aut judicare*, in common Articles 49, 50, 129, and 146 of the four Geneva Conventions and Article 85 of Additional Protocol I.[277] However, this grave-breach system of criminal enforcement of humanitarian law is only applicable when such heightened crimes are committed against persons and property protected by the Conventions in the context of international armed conflict. As a result, "applicab[ility] to non-international armed conflicts does not provide for international penal responsibility of persons guilty of violations."[278] Meron sums up the traditional view of the law that "neither common Article 3 (which is not among the grave breaches provisions of the Geneva Conventions) nor Protocol II (which contains no provisions on grave breaches) provided a basis for universal jurisdiction, and that

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272. Instructions for the Government of Armies of the United States in the Field, General Order No. 100, art. 57 (Apr. 24, 1863) [hereinafter Lieber Code]. *See generally* Theodor Meron, *Francis Lieber's Code and Principles of Humanity*, *in* WAR CRIMES LAW COMES OF AGE: ESSAYS 131–41 (Theodor Meron ed., 1998). For General Orders No. 100, see RICHARD SHELLY HARTIGAN, LIEBER'S CODE AND THE LAW OF WAR 45–71 (Precedent 1983).

273. Georges Abi-Saab, *The Concept of "War Crimes"*, *in* INTERNATIONAL LAW IN THE POST-COLD WAR WORLD 99, 104 (Sienho Yee & Wang Tieya eds., 2003).

274. Michael Bothe, *War Crimes*, *in* THE ROME STATUTE OF THE INTERNATIONAL CRIMINAL COURT: A COMMENTARY 379, 382–83 (Antonio Cassese, Paola Gaeta & John R.W.D. Jones eds., 2002).

275. Geneva POW Convention, *supra* note 22, arts. 3, 49, 50, 129, 146; Protocol I, *supra* note 33, art. 85. *See generally* Lindsay Moir, *Conduct of Hostilities—War Crimes*, *in* THE LEGAL REGIME OF THE INTERNATIONAL CRIMINAL COURT 487 (José Doria, Hans-Peter Gasser & M. Cherif Bassiouni eds., 2009).

276. Jean-Marie Henckaerts, *The Grave Breaches Regime as Customary International Law*, 7 J. INT'L CRIM. JUST. 683, 698 (2009).

277. *Id*. at 696.

278. Denise Plattner, *The Penal Repression of Violations of International Humanitarian Law Applicable in Non-International Armed Conflicts*, 30 INT'L REV. RED CROSS 409, 414 (1990).

they constituted, at least on the international plane, an uncertain basis for individual criminal responsibility."[279]

In addition to the fact that Hague Law is likely inapplicable in situations of non-international armed conflict, customary international law that is applicable to internal armed conflicts appears to lack the concept of war crimes.[280] This proposition is confirmed by the ICRC's comments regarding the establishment of the International Criminal Tribunal for the Former Yugoslavia, stating that "according to international humanitarian law as it stands today, the notion of war crimes is limited to situations of international armed conflict."[281] From this brief setting, it follows that, for the repression of breaches of common Article 3 to the Geneva Convention for the Protection of Victims of War and Additional Protocol II, penal prosecutions are left up to the discretion of the national authorities under their domestic criminal codes.[282] In the absence of provisions instructing how such breaches should be dealt with, legislative competence lies solely in the national law to regulate criminality.[283] To that effect, Article 6 of Protocol II refers to "penal prosecutions" as domestic prosecutions in which states could bring criminal proceedings against their own nationals, be they combatants or civilians, responsible for offenses within the territory.[284] It therefore merely articulates the rights and duties applicable during national prosecutions of those responsible for crimes related to internal armed conflict, and offers few essential judicial guarantees of impartiality and independence for humane treatment.[285] Many commentators share the view that, "at present, the instruments of international humanitarian law that may be invoked offer little prospect for effective and efficient penal enforcement," and therefore they question the viability of individual criminal responsibility for deliberate destruction of the natural environment in internal armed conflict.[286]

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279. Theodor Meron, *International Criminalization of Internal Atrocities*, 89 AM. J. INT'L L. 554, 559 (1995).

280. Final Report of the Commission of Experts Established Pursuant to Security Council Resolution 780 (1992) ¶ 52, U.N. Doc. S/1994/674 (May 27, 1994), http://www.icty.org/x/file/About/OTP/un_commission_of_experts_report1994_en.pdf.

281. Preliminary Remarks of the International Committee of the Red Cross, March 25, 1993 (unpublished) *cited by* Christopher Greenwood, *International Humanitarian Law and the Tadic Case*, 7 EUR. J. INT'L L. 265, 280 (1996).

282. *See* PERNA, *supra* note 22, at 140, 142.

283. EVE LA HAYE, WAR CRIMES IN INTERNAL ARMED CONFLICT 150–51 (Cambridge Univ. Press 2008).

284. Protocol II, *supra* note 51, art. 6; *see* SANDOZ, SWINARSKI & ZIMMERMANN, *supra* note 36, at 1396–97.

285. Asbiørn Eide, *The New Humanitarian Law in Non-International Armed Conflict*, *in* THE NEW HUMANITARIAN LAW OF ARMED CONFLICT 120, 120–22 (Antonio Cassese ed., 1979).

286. Gerard J. Tanja, *Individual Accountability for Environmental Damage in Times of Armed Conflict: International and National Penal Enforcement Possibilities*, *in* PROTECTION OF THE ENVIRONMENT DURING ARMED CONFLICT 69 INT'L L. STUD. 479, 483 (1996); *see also* Michael Bothe, *War Crimes in Non-International Armed Conflicts*, *in* WAR CRIMES IN INTERNATIONAL LAW 293, 300–01 (Yoram Dinstein & Mala Tabory eds., 1996); Hulme, *supra* note 131, at 71.

In the aftermath of the Cold War, the widespread atrocities committed during ethnic conflicts in the Former Yugoslavia and Rwanda led to the creation of ad hoc International Criminal Tribunals, which brought about a major breakthrough in the process of criminalizing violations of humanitarian law in internal armed conflict.[287] In the *Tadić* case, because the Yugoslav war was characterized as both internal and international, the International Criminal Tribunal for the Former Yugoslavia had to determine the meaning of "violations of the laws and customs of war" in Article 3 of its Status, which was silent regarding the types of conflicts to which it should apply.[288] The Appeals Chamber found that Article 3 was intended to cover both Geneva and Hague law, and that it might "be taken to cover all violations of international humanitarian law other than the 'grave breaches' of the four Geneva Conventions falling under Article 2."[289] Thus, as long as relevant requirements are met for an offense to be subject to prosecution, violations of the laws and customs of war in Article 3 would come under the jurisdiction of the Tribunal, no "matter whether the 'serious violation' has occurred within the context of an international or an internal armed conflict."[290]

As for the principle of individual criminal responsibility in internal armed conflict, following the path laid before it by the Nuremberg Tribunal, the Appeals Chamber saw no hindrance in the lack of any reference to criminal responsibility in common Article 3 and Protocol II for violations.[291] They found that individual criminal responsibility was applicable as long as there was sufficient evidence of customary international law to hold the authors of a particular prohibition criminally responsible.[292] Having established customary rules prohibiting such atrocities, the Tribunal expressed "no doubt that they entail individual criminal responsibility, regardless of whether they are committed in internal or international armed conflicts."[293] Thus, they concluded that "customary international law imposes criminal liability for serious violations of common Article 3, as supplemented by other general principles and rules on the protection of victims of internal armed conflict, and for breaching certain fundamental principles and rules regarding means and methods of combat in civil strife."[294]

In the light of the *Tadić* decision, criminal enforcement of Articles 35(3) and 55 of Additional Protocol I may be reassessed positively to the effect that, even if

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287. YUSUF AKSAR, IMPLEMENTING INTERNATIONAL HUMANITARIAN LAW: FROM THE *AD HOC* TRIBUNALS TO A PERMANENT INTERNATIONAL CRIMINAL COURT 8–21 (2004).

288. Prosecutor v. Tadić, Case No. IT-94-1-I, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 86 (Int'l Crim. Trib. for the Former Yugoslavia Oct. 2, 1995).

289. *Id.* ¶ 87.

290. *Id.* ¶ 94.

291. *Id.* ¶ 128.

292. *Id.* ¶ 128.

293. *Id.* ¶ 129.

294. *Id.* ¶ 134.

their violation is not a grave breach, it can still be criminalized in another way.[295] Once put to the Tribunal's individual responsibility test,[296] breaches of Articles 35(3) and 55 may well give rise to criminal prosecution and punishment. Their clear and unequivocal recognition as the rules of warfare in international law and state practice indicates an intention to criminalize such prohibitions.[297] If the customary status of individual criminal responsibility for the violations of Articles 35(3) and 55 were to be accepted,[298] then the question as to whether such prohibitions on deliberate environmental damage in international armed conflict could arguably be extended to apply in situations of internal armed conflict.[299] Matters of custom might perhaps arise in much the same way as the Tribunal's blurring of the traditional distinction between international and non-international armed conflicts in the *Tadić* case.[300] Whether or not this innovative unifying approach to expansive interpretation defies the real intention of the drafters of the 1949 Geneva Conventions and Additional Protocol II, and has since mustered any support in state practice, still remains highly controversial.[301]

Having said that, it is undeniable that a sharp division between belligerency and insurgency in traditional international law has gradually faded away since the 1930s, and some rules and principles previously agreed to govern only international armed conflicts have now increasingly been deemed applicable in civil wars.[302] This development is often characterized as the "humanization" of the humanitarian law of internal armed conflict[303] by way of a convergence with

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295. *See* Schmitt, *supra* note 31, at 81 (noting that "[t]he mere fact that an offense is not a grave breach, however, does not preclude prosecution; it only means that the heightened enforcement regime set forth for grave breaches does not apply"). *But see* Baker, *supra* note 63, at 377–79 (arguing that the violation of Article 55 amounts to a grave breach because the environment should be seen as a civilian object within the ambit of Article 85).

296. Christopher Greenwood, *Current Issues in the Law of Armed Conflict: Weapons, Targets and International Criminal Liability*, 1 SINGAPORE J. INT'L & COMP. L. 441, 465 (1997).

297. Marco Roscini, *Protection of the Natural Environment in the Time of Armed Conflict*, *in* INTERNATIONAL HUMANITARIAN LAW—AN ANTHOLOGHY 155, 172–73 (Louise Doswald-Beck, Azizur Rahman Chowdhury & Md Jahid Hossain Bhuiyan eds., 2009) (surveying evidence for the customary status).

298. *See* HENCKAERTS & DOSWALD-BECK, *supra* note 79, at 143–58. For a critical assessment, see Karen Hulme, *Natural Environment*, *in* PERSPECTIVES ON THE ICRC STUDY ON CUSTOMARY INTERNATIONAL HUMANITARIAN LAW 204, 231–32 (Elizabeth Wilmshurst & Susan Breau eds., 2007).

299. *See* Henckaerts & Constantin, *supra* note 77, at 486 (arguing for the expansion of the customary rules corresponding Articles 35(3) and 55 to non-international armed conflicts); *see also* Sonja Boelaert-Suominen, *The Yugoslavia Tribunal and the Common Core of Humanitarian Law Applicable to all Armed Conflicts*, 13 LEIDEN J. INT'L L. 619, 632–37 (2000). *See generally* Emily Crawford, *Blurring the Lines Between International and Non-International Armed Conflicts—The Evolution of Customary International Law Applicable in Internal Armed Conflicts*, 15 AUSTL. INT'L L. J. 29 (2008) (exploring the areas of humanitarian law where customary rules apply to internal armed conflict).

300. *See* Crawford, *supra* note 299, at 29.

301. *See* Moir, *supra* note 18, at 125–27.

302. ANTONIO CASSESE, GUIDO ACQUAVIVA, MARY FAN & ALEX WHITING, INTERNATIONAL CRIMINAL LAW: CASES & COMMENTARY 7–8 (Oxford Univ. Press, 2011) (giving the reasons for this development from one of state-sovereignty-approach towards a human-being-oriented approach in modern humanitarian law).

303. Theodor Meron, *The Humanization of Humanitarian Law*, 94 AM. J. INT'L L. 239, 244 (2000).

human rights law,[304] and has found its expression in the *Tadić* decision that "what is inhumane and consequently proscribed, in international wars, cannot but be inhumane and inadmissible in civil strife."[305] Remarkably, the Appeals Chamber's unifying approach to a single definition of armed conflict[306] has recently been adopted by the International Law Commission as the basis for its work on the protection of the environment in relation to armed conflicts, to the extent that "[t]he draft principles have been prepared on the general understanding that they would normally apply to both international and non-international armed conflicts."[307] In doing so, the Commission seems to do away with the traditional distinction between international and non-international armed conflicts with a view to moving towards a unified legal regime for *all* types of armed conflict. In effect, this would extend the law of international armed conflict to cover internal armed conflicts, meaning that an environmental war crime, if it existed under international customary law, should apply in equal measure to internal armed conflicts.

It should suffice to say that, after the *Tadić* decision, there has been growing recognition that the international criminality of internal atrocities is based on customary international law, despite the lack of a criminal enforcement mechanism under the treaty-based law of internal armed conflict.[308] The proposition that the customary status of common Article 3 and Protocol II gives rise to individual criminal responsibility has since received judicial and doctrinal support in the Tribunal's subsequent decisions and scholarly writings,[309] and is,

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304. THEODOR MERON, HUMAN RIGHTS IN INTERNAL STRIFE: THEIR INTERNAL PROTECTION 3–10 (Grotius Publications, 1987).

305. *See* Prosecutor v. Tadić, Case No. IT-94-1-1, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 119 (Int'l Crim. Trib. for the Former Yugoslavia Oct. 2, 1995).

306. Marie G. Jacobsson, *Preliminary Report of the Special Rapporteur on the Protection of the Environment in relation to Armed Conflicts*, ¶¶ 69–78, Int'l Law Comm'n, UNGA Doc. A/CN.4/674 (May 30, 2014), http://legal.un.org/docs/?symbol=A/CN.4/674.

307. Mathias Forteau, Statement of the Chairman of the Drafting Committee on the Protection of the Environment in Relation to Armed Conflicts, Int'l Law Comm'n 4 (July 30, 2015), http://legal.un.org/docs/?path=../ilc/documentation/english/statements/2015_dc_chairman_statement_peac.pdf&lang=EF.

308. *See* MOIR, *supra* note 24, at 188–92 (critically assessing the contribution of the *Tadić* case to international law).

309. *See* Greenwood, *supra* note 281, at 280–81 (stating that "[i]f violations of the international laws of war have traditionally been regarded as criminal under international law, there is no reason of principle why, once those laws came to be extended . . . to the context of internal armed conflicts, their violation in that context should not have been criminal"); *see also* Lindsay Moir, *Particular Issues Regarding War Crimes in Internal Armed Conflicts*, *in* THE LEGAL REGIME OF THE INTERNATIONAL CRIMINAL COURT 611–18, (José Doria, Hans-Peter Gasser & M. Cherif Bassiouni eds., 2009); Colin Warbrick & Peter Rowe, *The International Criminal Tribunal for Yugoslavia: The Decision of the Appeals Chamber on the Interlocutory Appeal on Jurisdiction in the* Tadic *Case*, 45 INT'L & COMP. L. Q. 691, 701 (1996); Theodor Meron, *Cassese's* Tadić *and The Law of Non-International Armed Conflicts*, *in* MAN'S INHUMANITY TO MAN 533–38 (Lal Chand Vohrah et al. eds., 2003); Michael P. Scharf, The Prosecutor v. Dusko Tadic: *An Appraisal of the First International War Crimes Trial Since Nuremberg*, 60 ALB. L. REV. 861, 863–64 (1997); *cf.* Marco Sassòli & Laura M. Olson, Prosecutor v. Tadić *(Judgement). Case No. IT-94-1-A. 38 ILM 1518 (1999)*, 94 AM. J. INT'L L. 571, 577 (2000).

without doubt, strengthened by the inclusion of war crimes in non-international armed conflict in the Rome Statute of the International Criminal Court.[310]

The fundamental premise of enforcement is that "[v]iolations of the Law of War engage, with immediate effect, the international responsibility of a State."[311] including for environmental damages proscribed in customary or conventional law.[312] Yet, the modern humanitarian approach to combatant and civilian protection is centered on individual rights and obligations, and the violation of those rights is increasingly criminalized to hold individual violators directly accountable at the international level,[313] not least, to increase the efficacy and deterrent effect of criminal prosecution and punishment as a means of enforcement.[314] To this end, the Rome Statute of the International Criminal Court contains an eco-centric provision in Article 8(2)(b)(iv), which criminalizes "[i]ntentionally launching an attack in the knowledge that such attack will cause . . . widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated."[315] This prohibition on environmental damage is placed in the category of other serious violations of the laws and customs outside the "grave breaches" listed in Article 8(2)(a), thereby imposing no legal obligation on states to prosecute this "environmental war crime."[316] Furthermore, it only applies to international armed conflict, and no comparable prosecution of a *serious* environmental violation is included to make it applicable in the case of an armed conflict of non-international character.[317] Nor did the drafters of the Rome Statute intend to view the specific prohibition of environmental war crimes as having a customary status, thus allowing its extension beyond international armed conflicts.[318]

Environmental damage may be construed as a material element or the "underlying act" of an international war crime contained in the Rome Statute, even in the absence of a distinct environmental war crime in an internal armed

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310. Rome Statute, *supra* note 156; *see* Yves Sandoz, *The History of Grave Breaches Regime*, 7 J. INT'L CRIM. JUST. 657, 678 (2009).

311. INGRID DETTER, THE LAW OF WAR 447 (2d ed. 2000).

312. Marcos A. Orellana, *Criminal Punishment for Environmental Damage: Individual and State Responsibility at a Crossroad*, 17 GEO. INT'L ENVTL. L. REV. 673, 684 (2005).

313. Robert Cryer, *Individual Liability in International Law*, *in* ROUTLEDGE HANDBOOK OF THE LAW OF ARMED CONFLICT 538, 538–40 (Rain Liivoja & Tim McCormack eds., 2016).

314. Walter G. Sharp, *The Effective Deterrence of Environmental Damage During Armed Conflict: A Case Analysis of the Persian Gulf War*, 137 MIL. L. REV. 1, 4–5 (1992); *see also* Yuzon, *supra* note 75, at 840.

315. Rome Statute, *supra* note 156. For an analysis, see STEVEN FREELAND, ADDRESSING THE INTENTIONAL DESTRUCTION OF THE ENVIRONMENT DURING WARFARE UNDER THE ROME STATUTE OF THE INTERNATIONAL CRIMINAL COURT 204–13 (2015); *see also* KNUT DÖRMANN, ELEMENTS OF WAR CRIMES UNDER THE ROME STATUTE OF THE INTERNATIONAL CRIMINAL COURT 161–76 (2002).

316. *See* Bruch, *supra* note 28, at 722.

317. Jessica C. Lawrence & Kevin Jon Heller, *The First Ecocentric Environmental War Crime: The Limits of Article 8(2)(b)(iv) of the Rome Statute*, 20 GEO. INT'L ENVTL. L. REV. 61, 84–85 (2007).

318. *See* Lopez, *supra* note 28, at 239.

conflict.[319] Henckaerts opines that Article 8(2)(e)(xii), which prohibits the destruction of the property of an adversary unless such destruction is imperatively demanded by the necessities of the conflict, may amount to a war crime potentially relevant to the protection of the environment in non-international armed conflict.[320] Moreover, Article 8(2)(e)(viii) classifies the forced displacement of civilians for reasons related to the conflict as a war crime in internal armed conflict, which has its counterpart in Article 17 of Protocol II.[321] If scorched-earth practices are employed to force the displacement of the civilian population, the consequences of environmental damage may constitute the material element of the war crime.[322] In the same vein, the prohibition of intentionally launching an attack against the civilian population in Article 8(2)(e)(i) closely resembles Article 13(2) of Additional Protocol II.[323] These three war crimes set out in the Rome Statute of the International Criminal Court could prohibit environmental damage, albeit indirectly, by application in internal armed conflict.

Perhaps more promising is the Article 8(2)(e)(v) inclusion of pillaging as a war crime in internal armed conflict, one of the oldest prohibitions in the laws of war, going back to the Lieber Code and the 1907 Hague Regulations.[324] It is also included in Article 4(2)(g) of Additional Protocol II as applicable in non-international armed conflict, and widely considered a customary rule in all forms including plundering, spoliation, and looting.[325] Notably, in the 2005 *Democratic Republic of the Congo v. Uganda* case,[326] the International Court of Justice regarded natural resource exploitation as pillage,[327] which may account for a property-based act of armed conflict qualifying as environmental damage prohibited by Protocol II. Indeed, much of the natural resource exploitation in Liberia, Sierra Leone, Angola, Cambodia, the Democratic Republic of the Congo, and Iraq may involve criminal acts arguably meeting the requirements contained within the elements of the International Criminal Court Statute for pillage.[328]

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319. Tara Weinstein, *Prosecuting Attacks that Destroy the Environment: Environmental Crimes or Humanitarian Atrocities?*, 17 GEO. INT'L ENVTL. L. REV. 697, 698 (2005).

320. Jean-Marie Henckaerts, *Towards Better Protection for the Environment in Armed Conflict: Recent Developments in International Humanitarian Law*, 9 REV. EUR., COMP. & INT'L ENVTL. L. 13, 17 (2000); *see also* DÖRMANN, *supra* note 315, at 485–86.

321. Rome Statute, *supra* note 156, art 8; *see* DÖRMANN, *supra* note 315, at 472–75.

322. Bronwyn Leebaw, *Scorched Earth: Environmental War Crimes and International Justice*, 12 PERSP. ON POL. 770, 776 (2014).

323. *See* DÖRMANN, *supra* note 315, at 443–46.

324. Rome Statute, *supra* note 156, art. 8.

325. Protocol II, *supra* note 51, art. 4.

326. Armed Activities on the Territory of the Congo (New Application: 2002) (Democratic Republic of the Congo v. Rwanda), Jurisdiction and Admissibility, Judgment, 2006 I.C.J. 6 (Feb. 3, 2006). *See generally* Phoebe N. Okowa, *Natural Resources in Situations of Armed Conflict: Is There a Coherent Framework for Protection?*, 9 INT'L COMMUNITY L. REV. 237 (2007).

327. *See* Dam-de Jong, *supra* note 69, at 49.

328. Michael A. Lundberg, *The Plunder of Natural Resources During War: A War Crime (?)*, 39 GEO. J. INT'L L. 495, 508 (2008).

However, in its judgment against Charles Taylor in 2012, the Special Court for Sierra Leone did not attribute criminality to the exploitation of natural resources as pillage beyond the looting of diamonds, money, and other moveable goods.[329] In this sense, the war crime of pillage involves all forms of unlawful appropriation of property, both private and public, in armed conflict,[330] and it is expressed in Article 8(2)(e)(v) of the Rome Statute in an absolute form that is free of a military necessity exception.[331]

Using environmental damage as the underlying act of another international crime suggests that indirect protection may be achieved by "prosecuting individuals for environmental attacks conducted in furtherance of other atrocities, such as genocide or crimes against humanity" punishable under the Rome Statute.[332] In Sudan, government forces allegedly pursued a scorched-earth policy in the Darfur region. However, in its first arrest warrant for the Sudanese President Omar Al Bashir in 2009, the International Criminal Court decided that, while there was not enough evidence to prove genocidal intent, his actions did amount to war crimes or crimes against humanity.[333] Lopez points to the difficulties in proving the crime of genocide or crimes against humanity, as they "remain sporadic, so they do not provide remedies to all environmental concerns."[334]

CONCLUSION

There is no system equivalent to the grave-breaches provisions to compel states to prosecute individuals responsible for the most egregious crimes during internal armed conflict under common Article 3 and Additional Protocol II.[335] Furthermore, war crimes as international crimes can only be committed during international armed conflict.[336] Because no international criminal enforcement mechanism for grave breaches entails the procedural obligation to enact effective penal sanctions—to search, prosecute, or extradite, or to establish compulsory

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329. Prosecutor v. Charles Ghankay Taylor, Case No. SCSL-03-01-T, Judgement, (Special Court for Sierra Leone May 18, 2012).

330. Celebici Camp Case, Case No. IY-96-21-T, Judgement, ¶ 591 (Int'l Crim. Trib. for the Former Yugoslavia Nov. 16, 1998).

331. *See* Bruch, *supra* note 28, at 723.

332. *See* Weinstein, *supra* note 319, at 713; *see also* Peter Sharp, Note, *Prospects for Environmental Liability in the International Criminal Court*, 18 VA. ENVTL L. J. 217, 233 (1999) (stating that "[the ICC] must be able to prosecute acts of genocide, crimes against humanity, and war crimes which are carried out through environmental means.").

333. Prosecutor v. Al Bashir, Case No. ICC-02/05-01/09, Decision on the Prosecutor's Application for a Warrant of Arrest against Omar Hassan Ahmad Al Bashir, ¶ 172 (Mar. 4, 2009); *see* MREMA, BRUCH & DIAMOND, *supra* note 6, at 31–32.

334. *See* Lopez, *supra* note 28, at 266.

335. Thilo Marauhn, *Environmental Damage in Times of Armed Conflict—Not "Really" a Matter of Criminal Responsibility?*, 82 INT'L REV. RED CROSS 1029, 1035–36 (2000) (questioning the utility of Articles 35(3) and 55 of Protocol I in imposing criminal liability in international armed conflict.).

336. *See id.*

universal jurisdiction as envisaged for crimes committed in internal armed conflict—strictly speaking, these are not really war crimes, but merely crimes under national law.[337] In an international sense, they could be considered unlawful acts rather than crimes. However, Article 8 of the Rome Statute of the International Criminal Court has changed this traditional view of the law and criminalized environmental harm in the context of international armed conflict, at the same time as classifying certain internal atrocities with environmental consequences as war crimes.[338] But its adequacy as an effective means of criminal prosecution and punishment of environmental damage in armed conflict has been questioned.[339] Furthermore, the lack of judicial precedents fails to dispel doubts about the efficacy of criminal enforcement of international humanitarian law for environmental damage in both international and non-international armed conflicts.[340]

Perhaps a better approach is to seek solutions complementary to—but not merely limited to—penal law, in order to entertain a wide range of proposals advanced to tackle the difficult conundrum of environmental protection in the broader context of international humanitarian law.[341] Recent attempts have included a radical proposal for a "Fifth Geneva Convention on the Protection of the Environment in Time of Armed Conflict" by the London Conference in 1991,[342] a pragmatic, expansive approach using the broader and more protective norms applicable to international armed conflict to apply in the context of internal armed conflicts,[343] the elimination of the distinction between internal and international armed conflict,[344] the continuing application of peacetime environmental law to non-international armed conflicts by an interpretative approach,[345]

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337. Ryan Gilman, *Expanding Environmental Justice After War: The Need for Universal Jurisdiction over Environmental War Crimes*, 22 COLO. J. INT'L ENVTL L. & POL'Y 447, 452–53 (2011).

338. Tara Smith, *Creating a Framework for the Prosecution of Environmental Crimes in International Criminal Law*, *in* THE ASHGATE RESEARCH COMPANION TO INTERNATIONAL CRIMINAL LAW: CRITICAL PERSPECTIVES 45, 59–60 (William A. Schabas, Yvonne McDermott & Niamh Hayes eds., 2013) (arguing that even if a green interpretation of Articles 8(2)(c)–(f) may offer a degree of indirect environmental protection in the absence of specific provisions, its potential to provide adequate environmental protection remains extremely limited in internal armed conflicts.).

339. *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, 124–26 (1998); *see also* Mohammed Saif-Alden Wattad, *The Rome Statute & Captain Planet: What Lies between "Crimes Against Humanity" and the "Natural Environment?"*, 19 FORDHAM ENVTL. L. REV. 265, 278–79 (2009).

340. *See* Weinstein, *supra note* 319, at 704–05.

341. Michael N. Schmitt, *War and the Environment: Fault Lines in the Prescriptive Landscape*, *in* THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES 87, 130–36 (Jay E. Austin & Carl E. Bruch eds., 2000).

342. *See generally* GLEN PLANT, ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT 3–62 (1992).

343. *See* Meron, *supra* note 279, at 556.

344. *See* Cullen, *supra* note 57, at 97–107.

345. *See generally* Silja Vöneky, *A New Shield for the Environment: Peacetime Treaties as Legal Restraints of Wartime Damage*, 9 REV. EUR., COMMUNITY. & INT'L ENVTL L. 20 (2000).

the introduction of the concepts of environmental war crimes, ecocide, or geocide with the human rights dimension,[346] and a soft approach to compliance involving the dissemination of guidelines for military manuals to enhance compliance with the existing humanitarian obligations.[347] Notwithstanding the risk of fragmentation that some of these approaches would pose, their combined effect may yet be strong enough to overcome the reluctance of states to regulate the environmental aspects of internal armed conflict.[348] These approaches inspire the unification of international humanitarian law in hopes of creating a coherent body of substantive norms, and a more comprehensive mechanism for their effective implementation and enforcement.[349]

346. Arthur H. Westing, *Proscription of Ecocide: Arms Conrol and the Environment*, *in* THE VIETNAM WAR AND INTERNATIONAL LAW: THE CONCLUDING PHASE 283, 283–86 (Richard A. Falk ed., 1976); *see also* Lynn Berat, *Defending the Right to a Heathy Environment: Toward a Crime of Geocide in International Law*, 11 BOS. U. INT'L L.J. 327, 340–48 (1993); Mark Allan Gray, *The International Crime of Ecocide*, 26 CAL. W. INT'L L.J. 215, 266–70 (1996); Christopher H. Lytton, *Environmental Human Rights: Emerging Trends in International Law and Ecocide*, 13 ENVTL. CLAIMS J. 73, 81–83 (2000).

347. Int'l Committee of the Red Cross, *1993 Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict*, 311 INT'L REV. RED CROSS 230, 230–37 (1996) (citing U.N. Secretary-General, United Nations Decade of International Law, Annex, U.N. Doc. A/49/323 (Aug. 19, 1994)); *see also* Hans-Peter Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 AM. J. INT'L L. 637, 639–40 (1995).

348. *See* Falk, *supra* note 17, at 144–50; *see also* Bruch, *supra* note 28, at 737–43.

349. *See* Falk, *supra* note 17, at 144–50; *see also* Bruch, *supra* note 28, at 737–43.