

The legal limits to the destruction of natural resources in non-international armed conflicts: Applying international humanitarian law

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Abstract

This article analyzes whether and to what extent energy resources fulfil the definition of military objective within the meaning of international humanitarian law (IHL) and customary IHL. In order to bring conceptual clarity to the duty to protect the natural environment in armed conflict, the article explores the legal limits to the destruction of energy resources (that are part of the natural environment) controlled by armed non-State actors during non-international armed conflicts (NIACs). It examines the practice of the United States, which characterizes the destruction of the natural environment during hostilities as being related to targets that contribute to the “war-sustaining capability” of enemies. Conceptual light is shed on the legality of attacks on oil refineries and installations during NIACs as a matter for IHL.

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Introduction

Damaging energy resources that are part of the natural environment (such as oil, coal, natural gas and uranium) during armed conflicts is a matter for international humanitarian law (IHL), which permits it only under specific circumstances.¹ Therefore, depending on the circumstances, when distinguishing between civilian objects and military objectives, as well as conducting an assessment of military necessity and proportionality when targeting military objectives, States must assess the extent of the risk to the environment that may arise from the destruction of energy resources. Prevention of environmental damage during armed conflicts is a rule of customary IHL that continues to apply in both international armed conflicts (IACs) and non-international armed conflicts (NIACs).²

One might argue that these specific rules have not become part of customary international law, but practice shows that States are conscious of the high risk of severe incidental losses which can result from attacks on works and installations when they constitute military objectives.³ Consequently, they recognize that in any type of armed conflict, particular care must be taken during

- 1 The issue will be explored in more detail under the key relevant provisions, including Articles 35(3), 51, 52, 55 and 56 of Additional Protocol I to the Geneva Conventions; Article 15 of Additional Protocol II to the Geneva Conventions; Article 8(2)(b)(iv) of the Rome Statute of the International Criminal Court; Article II of the ENMOD Convention; and Rules 43, 44 and 45 of the International Committee of the Red Cross (ICRC) Customary Law Study.
- 2 Jean-Marie Henckaerts and Louise Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. 1: *Rules*, Cambridge University Press, Cambridge, 2005 (ICRC Customary Law Study), Rules 43–45, pp. 143–158, available at: <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1> (all internet references were accessed in April 2023). For further discussion, see Cymie R. Payne, “Protection of the Natural Environment”, in Ben Saul and Dapo Akande (eds), *The Oxford Guide to International Humanitarian Law*, Oxford University Press, Oxford, 2020; Cordula Droeger and Marie-Louise Tougas, “The Protection of the Natural Environment in Armed Conflict: Existing Rules and Need for Further Legal Protection”, *Nordic Journal of International Law*, Vol. 82, No. 1, 2013; Michael Bothe, Carl Bruch, Jordan Diamond and David Jensen, “International Law Protecting the Environment During Armed Conflict: Gaps and Opportunities”, *International Review of the Red Cross*, Vol. 92, No. 879, 2010.
- 3 The United States, for example, has long opposed Article 56 of AP I and believes that neither Article 15 of AP II nor Article 56 of AP I reflect customary international law. See US Department of Defence (DoD), *Law of War Manual*, Office of General Counsel, Washington, DC, 2016, section 17.7.1, p. 1051; Protocol Additional (I) to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 1125 UNTS 3, 8 June 1977 (entered into force 7 December 1978) (AP I); Protocol Additional (II) to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts, 1125 UNTS 609, 8 June 1977 (entered into force 7 December 1978) (AP II). For a discussion, see Michael N. Schmitt, “Attacking Dams – Part I: Customary International Law”, *Articles of War*, 31 January 2022, available at: <https://lieber.westpoint.edu/attacking-dams-part-i-customary-international-law/>; Michael N. Schmitt, “Attacking Dams – Part II: The 1977 Additional Protocols”, *Articles of War*, 2 February 2022, available at: <https://lieber.westpoint.edu/attacking-dams-part-ii-1977-additional-protocols/>. For State practice, see Jean-Marie Henckaerts and Louise Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. 2: *Practice*, Cambridge University Press, Cambridge, 2005 (ICRC Customary Law Study), pp. 814–840.

attacks to avoid the release of dangerous forces and consequent severe losses among the civilian population. This requirement was found to be part of customary international law and is applicable in IACs and NIACs.⁴

What is certain in this regard is that oil rigs, oil storage facilities and oil refineries are not objects containing dangerous forces within the meaning of Article 15 of Additional Protocol II (AP II) and Article 56 of Additional Protocol I (AP I) and that, if these objects are to be given any special protection by the Additional Protocols, it should be done by another article, perhaps by a special article for that purpose.⁵ This also underlies the approach of the US authorities, who mention that energy resources may qualify as military objectives that effectively contribute to the enemy's capacity to wage war,⁶ the total or partial destruction, capture or neutralization of which, in the circumstances ruling at the time, offers a definite military advantage.⁷ This categorization is based on the US Military Commissions Act of 2009, which states that the term "military objective" refers to combatants and those objects which, during hostilities and by their nature, location, purpose or use, effectively contribute to the war-fighting or war-sustaining capability (war effort) of an opposing force and whose total or partial destruction, capture or neutralization would constitute a definite military advantage to the attacker under the circumstances at the time of an attack.⁸

Characterizing Iraqi and Syrian oil refineries occupied by the so-called Islamic State group (IS) as military objectives stems from the United States' interpretation of the law,⁹ contained in Article 52 of AP I, which states:

- 4 Jean-Marie Henckaerts, "Study on Customary International Humanitarian Law: A Contribution to the Understanding and Respect for the Rule of Law in Armed Conflict", *International Review of the Red Cross*, Vol. 87, No. 857, 2005, p. 191.
- 5 Yves Sandoz, Christophe Swinarski and Bruno Zimmerman (eds), *Commentary on the Additional Protocols to the Geneva Conventions*, ICRC, Geneva, 1987 (ICRC Commentary on the APs), p. 668.
- 6 See International Law Association Study Group on the Conduct of Hostilities in the 21st Century (ILA Study Group), "The Conduct of Hostilities and International Humanitarian Law: Challenges of 21st Century Warfare", *International Law Studies*, Vol. 93, 2017, p. 330; DoD, above note 3, p. 220.
- 7 DoD, above note 3, p. 210.
- 8 US Military Commissions Act, 28 October 2009, para. 950p(a)(1), available at: www.intelligence.senate.gov/laws/military-commissions-act-2009-title-xviii-national-defense-authorization-act-fiscal-year-2010 ; DoD, above note 3, section 5.6.6, pp. 212–214.
- 9 This is subject to Rule 23 of the *HPCR Manual on International Law Applicable to Air and Missile Warfare*, which qualifies energy-producing facilities and oil storage depots as military objectives by nature in the circumstances ruling at the time (see also Rule 1(y)). This was, however, criticized by the ICRC, which declared that an object is a military objective by nature only if it has an "inherent characteristic or attribute which contributes to military action", and that an "inherent characteristic or attribute" cannot be conceived of on a merely temporary basis and by definition has to be permanent. In essence, the key is that the test for military objectives (those objects which, by their nature, location, purpose or use, make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage) must be met before an object may be attacked. See Program on Humanitarian Policy and Conflict Research, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, Harvard University, 2010, p. 109. For a discussion, see ILA Study Group, above note 6, pp. 330–331.

1. Civilian objects shall not be the object of attack or reprisals. They are not military objectives as defined in paragraph 2.
2. Attacks shall be limited strictly to military objectives, and military objectives are limited to those objects which by their nature, location, purpose, or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.
3. In case of doubt whether an object which is normally dedicated to civilian purposes (e.g., a place of worship, a house or dwelling, a school) is a military objective or not, it shall be considered a civilian object.¹⁰

Article 52 only specifies military objectives in the second paragraph. According to the International Committee of the Red Cross (ICRC) Commentary on the Additional Protocols, a military objective for the purpose of Article 52(2) of AP I must meet two criteria to be a military objective:

1. The object, by its nature, location, purpose or use, has to contribute effectively to the military action of the enemy. The object's "nature" speaks of its intrinsic character and comprises all objects directly used by the armed forces (weapons, equipment, transport, fortifications, depots, buildings occupied by the armed forces, staff headquarters, communications centres, etc).¹¹ However, there are some objects that only by their "location" make an effective contribution to military action, simply because they are situated in an area that is a legitimate target. In that sense, a specific area of land may be a military objective if its total or partial destruction, capture or neutralization in the circumstances at the time offers a definite military advantage. The object's "purpose" clearly refers to the enemy's intended future use of it, based on reasonable belief, while the object's "use" is about the current function of the object (e.g., weapons factories and even extraction industries providing raw materials for such factories are military objectives, because they serve the military, albeit indirectly).¹²
2. It is unlawful to launch an attack that offers only a potential or indeterminate advantage. In other words, the object's destruction, capture, or neutralization is lawful only if it offers a definite military advantage to the attacker. Hence, those ordering or executing such an attack must have sufficient intelligence available to consider this requirement. In case of doubt as to whether an object which is normally dedicated to civilian purposes is a military objective or not, it shall be considered a civilian object.¹³

As mentioned above, the United States has characterized Iraqi and Syrian oil refineries occupied by IS as military objectives that may be targeted within the

10 For an extensive discussion, see Yoram Dinstein, "Distinction and Loss of Civilian Protection in International Armed Conflicts", *International Law Studies*, Vol. 84, 2008; Yoram Dinstein, "Legitimate Military Objectives Under the Current Jus in Bello", *International Law Studies*, Vol. 87, 2002.

11 ICRC Commentary on the APs, above note 5, p. 636, para. 2020.

12 *Ibid.*

13 *Ibid.*, p. 637. See also ICRC, *The Law of Armed Conflict: Conduct of Operations – Part A*, Geneva, 2002, pp. 4–5.

meaning of Article 52 of AP I. Recall, however, that even when targeting admittedly military objectives within the meaning of IHL, there is a need to avoid excessive long-term damage to the natural environment. Indeed, military objectives should not be targeted if the attack is likely to cause incidental harm to the environment that would be excessive in relation to the direct military advantage which the attack would be expected to confer.¹⁴ This is also evident from Rule 7 of the ICRC's 2020 *Guidelines on the Protection of the Natural Environment in Armed Conflict*, under which "launching an attack against a military objective which may be expected to cause incidental damage to the natural environment which would be excessive in relation to the concrete and direct military advantage anticipated is prohibited".¹⁵

Evidently, the 1990–91 Gulf War proved that oil refineries and oil production installations are too much of a risk to the natural environment in many situations and would need special protection because of their significant potentially harmful and long-term environmental impact and risk to human health in case of attack.¹⁶ Targeting oil refineries and installations by air and sea results in air pollution and the risk of the release of hazardous waste. In a sense, the natural environment, which cannot be separated from human life, is the "silent victim"¹⁷ of armed conflicts and must be protected from attacks.

Regarding this issue, which is the primary subject of this article, the US-led coalition forces' attacks¹⁸ on Iraqi and Syrian oil facilities under the control of IS as military objectives have been the subject of controversy. Specifying the scope of the illegality of targeting an installation that is part of the natural environment, but

14 A. P. V. Rogers, "Zero-Casualty Warfare", *International Review of the Red Cross*, Vol. 82, No. 837, 2000, pp. 177–178.

15 ICRC, *Guidelines on the Protection of the Natural Environment in Armed Conflict: Rules and Recommendations Relating to the Protection of the Natural Environment under International Humanitarian Law, with Commentary*, Geneva, 2020, Rule 7, p. 8. Similarly, see Principle 14 of the International Law Commission (ILC) Draft Principles on Protection of the Environment in Relation to Armed Conflicts, under which "[IHL], including the principles and rules on distinction, proportionality and precautions shall be applied to the environment, with a view to its protection", See ILC, *Draft Principles on Protection of the Environment in Relation to Armed Conflicts*, adopted by the Commission at its 73rd Session, 18 April–3 June and 4 July–5 August 2022, UN Doc. A/CN.4/L.968, 20 May 2022 (ILC Draft Principles).

16 UN Environment Programme (UNEP), *Desk Study on the Environment in Iraq*, Nairobi, 2003, pp. 65–68.

17 Rosemary Rayfuse, "Rethinking International Law and the Protection of the Environment", in Rosemary Rayfuse (ed.), *War and the Environment: New Approaches to Protecting the Environment in Relation to Armed Conflict*, Brill Nijhoff, Leiden and Boston, MA, 2014, p. 1; Desy Churul Aini and Desia Rakhma Banjarani, "Environmental Protection in Armed Conflict According to International Humanitarian Law", *Tadulako Law Review*, Vol. 3, No. 1, 2018, pp. 13–14. For more details, see "On International Day, UN Urges Protection of Environment from Ravages of War: The UN Secretary-General Message for the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict", *UN News*, 6 November 2014, available at: <https://news.un.org/en/story/2014/11/482922>.

18 After IS advanced into Iraq from Syria in June 2014, President Barack Obama authorized targeted air strikes against IS militants in Iraq and Syria in August 2014. The United States then formed an international coalition to counter IS. Over sixty nations and partner organizations agreed to participate, contributing military forces or resources (or both) to the campaign. See "Keynote Address by General John Allen, Special Presidential Envoy for the Global Coalition to Counter ISIL", Brookings Institution, 3 June 2015, available at: www.brookings.edu/wp-content/uploads/2015/04/060315BROOKINGSDOHA.pdf.

which contains dangerous forces, can be done through an evaluation in the context of the standards of IHL.

Natural resources and defending the natural environment from wilful destruction during armed conflicts

Conceptual framework

As discussed earlier, under Article 52(2) of AP I, oil facilities can be considered legitimate military targets if the mentioned criteria are fulfilled. However, the acceptability of targeting oil facilities of any kind as legitimate military targets during armed conflict is contentious because of their environmental impact and because they might not fulfil the criteria necessary to deem them military objectives since they are not making an “effective contribution to military action”, meaning that they do not satisfy the Article 52(2) definition of military objectives.¹⁹ Therefore, there would be doubt that they could be considered legitimate military objectives open to destruction by any belligerent.²⁰ Fires at oilfields, oil installations and oil storage facilities can last a long time and can release clouds of pollution over wide areas. The destruction of oil facilities might give rise to toxic air pollution, or oil might seep into the ground and poison water supplies. Also, if the oilfields and installations are located in a coastal State, oil spills can inflict huge environmental damage on coastal marshlands and fishing grounds and may be devastating to marine life,²¹ such as what occurred during the 1990–91 Gulf War. In its Resolution 47/37, the United Nations (UN) General Assembly expressed its deep concern regarding environmental damage and the depletion of natural resources, including the destruction of oil-well heads and the release of crude oil into the sea. Further, the resolution stated that the wanton destruction of the natural environment was contrary to international law, and that existing provisions prohibited such acts.²² It is also worth noting that although the General Assembly’s resolutions are non-binding, they can provide important evidence for establishing the existence of a rule or *opinio juris*, since the formulation and expression of State practice in matters pertaining to international law are manifested through the resolutions.²³

19 For a much more extended discussion, see Laurent Gisel, “The Relevance of Revenue-Generating Objects in Relation to the Notion of Military Objective”, *Proceedings of the Bruges Colloquium: The Additional Protocols at 40: Achievements and Challenges*, 18th Bruges Colloquium, 19–20 October 2017.

20 See L. C. Green, “Environment and the Law of Conventional Warfare”, *Canadian Yearbook of International Law*, Vol. 29, 1992, pp. 233–234. For an extensive analysis, see Michael N. Schmitt, “Green War: An Assessment of the Environmental Law of International Armed Conflict”, *Yale Journal of International Law*, Vol. 22, No. 1, 1997; Robert E. Linhard, “Protection of the Environment during Armed Conflict and Other Military Operations”, *International Law Studies*, Vol. 69, 1996.

21 Yoram Dinstein, “Protection of Environment in International Armed Conflicts”, *Max Planck Yearbook of United Nations Law*, Vol. 5, 2001, pp. 523–524.

22 UNGA Res. 47/37, 25 November 1992.

23 International Court of Justice (ICJ), *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996 (Nuclear Weapons Advisory Opinion), para. 70; Sangwani Patrick Ng’ambi, “Permanent

In its substance, Article 55(1) of AP I prohibits widespread, long-term and severe damage to the environment, which reiterates the regulation contained in Article 22 of the 1899 and 1907 Hague Conventions, providing that the right of belligerents to adopt means of injuring the enemy is not unlimited (prohibited methods of warfare). Article 55(1) of AP I states:

Care shall be taken in warfare to protect the natural environment against widespread, long-term, and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

Unlike Article 35(3) of AP I, which makes no connection between damage to the natural environment and the health or survival of the population, Article 55(1) draws a connection between damage to the natural environment and its effects on civilians (civilian protection) and includes a reference to the health or survival of the population.²⁴ In essence, the provisions contained in Article 55(1) do not duplicate each other. However, although both provisions afford protection to the natural environment from damaging weapons and methods of warfare, it is important to note that the thrust of the protection is clear from the four years of negotiations on AP I and is firmly rooted in the protection of the “population”.²⁵

What is certain is that the *travaux préparatoires* of AP I do not provide a definition of the term “widespread, long-term and severe” damage, which refers to the key elements of environmental regulations contained in Article 55(1). In comparison, the Annex of the non-binding 1976 Environmental Modification Convention (ENMOD Convention),²⁶ which was adopted several months before AP I, has interpreted the above-mentioned terms as follows: (a) “widespread”: encompassing an area on a scale of several hundred square kilometres; (b) “long-term”: lasting for a period of months, or approximately a season; and (c) “severe”: involving serious or significant disruption or harm to human life and/or to natural and economic resources or other assets.²⁷ For the sake of clarity, the very recent interpretations released by the UN Environment Programme (UNEP) and the ICRC recommend that in AP I, “widespread” probably means several

Sovereignty Over Natural Resources and the Sanctity of Contracts, from the Angle of *Lucrum Cessans*”, *Loyola University Chicago International Law Review*, Vol. 12, No. 2, 2015, pp. 157–158. For a comprehensive overview of the relevant standards on this issue, see UNGA Res. ES-11/2, 24 March 2022; UN Environment Assembly Res. 3/1, “Pollution Mitigation and Control in Areas affected by Armed Conflict or Terrorism”, UN Doc. UNEP/EA.3/Res.1, 6 December 2017; UN Environment Assembly Res. 2/15, “Protection of the Environment in Areas Affected by Armed Conflict”, UN Doc. UNEP/EA.2/Res.15, 27 May 2016; ILC Draft Principles, above note 15.

24 See ICRC, above note 15, para. 73.

25 See Karen Hulme, *War Torn Environment: Interpreting the Legal Threshold*, Martinus Nijhoff, Leiden and Boston, MA, 2004, p. 11; ICRC Commentary on the APs, above note 5, p. 410.

26 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, adopted by UNGA Res. 31/72, 10 December 1976 (ENMOD Convention).

27 *Ibid.*, Annex. See also UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, Nairobi, 2009, p. 52.

hundred square kilometres, as it does in the ENMOD Convention.²⁸ In relation to “long-term”, it has been recommended that a factor to consider in determining the kind of damage that is “long-term” could be the ability of certain substances to persist in particular natural environments. For example, it is well accepted that serious environmental contaminants and hazardous substances can remain in the natural environment for lengthy periods and cause – and continue to cause – harm to species, including humans.²⁹ “Severe” is defined as a threshold that should be understood to cover disruption or damage to an ecosystem or harm to the health or survival of the population on a large scale.³⁰ In the interests of clarity, UNEP recommends that the precedent set by the ENMOD Convention – “involving serious or significant disruption or harm to human life, natural and economic resources or other assets” – should serve as the minimum basis for the development of a clearer definition of “severe”.³¹ In that sense, as the meaning of “severe” in the context of Articles 35(3) and 55(1) of AP I is understood to cover damage prejudicing the health or survival of the population and ecological concerns, effects involving serious or significant disruption or harm to human life or natural resources should be considered in determining the type of damage that could be covered.³²

The natural environment has been defined by the ICRC’s Commentary on AP I Article 35 (on methods and means of warfare) as the system of inextricable interrelations between living organisms and their inanimate environment, whereas effects on the human environment are understood as effects on external conditions and influences which affect the life, development and survival of the civilian population and other living organisms.³³ The environment in this sense may be indirectly damaged by the targeting of oil resources as part of the environment in cases where they are considered legitimate military objectives. Rule 43 of the ICRC Customary Law Study is explicit that no part of the natural environment may be attacked unless it is a military objective, and that destruction of any part of the natural environment is prohibited unless required by imperative military necessity.³⁴ One possible reading of this rule is that the natural environment and its components such as “energy resources”³⁵ might be used for military purposes, which makes it easier for them to be considered as military objectives. This could only be the case, however, if such resources make an effective contribution to the military actions of the enemy and their destruction, capture or neutralization offers a definite military advantage within the meaning of Article 52(a) of AP I. In other words, immunity from attack can be lost if the object is used in direct support of the enemy’s military operations.

28 See ICRC, above note 15, para. 60.

29 *Ibid.*, paras 64–65.

30 *Ibid.*, para. 72.

31 UNEP, above note 27, p. 5.

32 ICRC, above note 15, para. 72.

33 See ICRC Commentary on the APs, above note 5, para. 1451.

34 This is precisely the argument that will be discussed later under the section on “The Obligation to Protect Natural Resources as State Property”.

35 ICRC, above note 15, para. 179.

Note, however, that even in such a case, the damage could constitute “incidental loss of civilian life, injury to civilians, [or] damage to civilian objects”, which is only permissible to the extent that it is not “excessive” in relation to the concrete and direct military advantage anticipated as a result of the attack;³⁶ even if an element of the natural environment is lawfully attacked because it constitutes a military objective, depending on the scale of the attack there may be long-term environmental damage beyond the actual destruction.³⁷ However, the vagueness of the term “widespread, long-term and severe” may be identified as a major gap in the existing international legal framework of IHL regarding the practical issues of proportionality, where environmental damage is seen as collateral damage caused by attacks on military objectives.³⁸

Following AP I, Rule 43 of the ICRC Customary Law Study states that “[l]aunching an attack against a military objective which may be expected to cause incidental damage to the environment, which would be excessive in relation to the concrete and direct military advantage anticipated, is prohibited”.³⁹ Such an attack is not in conformity with the principle of necessity, which states that the use of military force is only justified to the extent that it is necessary for achieving a defined military objective. In literal terms, military necessity consists of the necessity of those measures which are indispensable for weakening the enemy’s military capabilities, and which are lawful according to the modern law and usages of war. To put it mildly, military actions that do not serve any evident military purpose are forbidden.⁴⁰ Nonetheless, unlike the ENMOD Convention, which requires deliberate and intentional damage, the outline of Articles 35 and 55 of AP I refers to a cumulative threshold, which is explained by the fact that the Protocol prohibits damage resulting from those methods and means of warfare which are expected to cause widespread, long-term and severe damage – whether deliberate or unintentional. The most logical reading of this provision is that this threshold is absolute and that any widespread, long-term and severe damage to the natural environment is prohibited regardless of military necessity or proportionality considerations.⁴¹

It is possible, however, to apply the proportionality standard to the natural environment under Article 51(5)(b) of AP I, according to which an attack that “may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated”, is to be considered as indiscriminate. This is also evident from Principle 14 of the International Law

36 M. Bothe *et al.*, above note 2, p. 577.

37 *Ibid.*, p. 578.

38 *Ibid.*, pp. 570, 578.

39 ICRC Customary Law Study, above note 2, p. 143. For a discussion, see Nobuo Hayashi, “Requirements of Military Necessity in International Humanitarian Law and International Criminal Law”, *Boston University International Law Journal*, Vol. 28, No. 1, 2010.

40 Francis Lieber, *Instructions for the Government of Armies of the United States in the Field*, General Order No. 100, 24 April 1863 (Lieber Code), Art. 14; UNEP, above note 27, p. 11; Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, Cambridge University Press, Cambridge, 2016, pp. 89–90.

41 ICRC, above note 15, para. 52.

Commission's (ILC) Draft Principles on Protection of the Environment in Relation to Armed Conflicts (ILC Draft Principles), under which the principles of distinction and precautions and the proportionality rule shall be applied to the natural environment, with a view to its protection.⁴² This is also the position of the ICRC, which notes that State practice shows a general acceptance of the principle that incidental damage affecting the natural environment must not be excessive in relation to the military advantage anticipated from an attack on a military objective.⁴³

There is also a widespread and uniform practice prohibiting deliberate attacks on the natural environment as a method of warfare. For example, Estonia's Penal Code prohibits affecting the natural environment as a method of warfare.⁴⁴ Iraq and Kuwait, in letters to the UN Secretary-General in 1991, have stated that the environment and natural resources must not be used as a weapon.⁴⁵ Sweden and Canada have characterized the destruction of the natural environment by Iraqi forces as an unacceptable form of warfare, and have stated that the environment as such should not form the object of direct attack.⁴⁶ Relatedly, the declaration adopted in 1991 by the Organisation for Economic Co-operation and Development ministers of the environment condemned Iraq's burning of oilfields and discharging of oil into the Gulf as a violation of international law and urged Iraq to cease resorting to environmental destruction as a weapon.⁴⁷

Ultimately, when it comes to "oil facilities", there is no valid reason to exclude them from consideration as installations whose extensive destruction in times of armed conflict might lead to environmental damage, such as that mentioned in Article 55(1) of AP I, as a conventional rule which embodies a general obligation to protect the natural environment against widespread, long-term and severe environmental damage. Besides this, given that this regulation is also contained in Article 56 of AP I,⁴⁸ it might be argued that oil resources and facilities are indirectly protected during both IACs and NIACs.

General survey of environmental destruction during armed conflicts

Article 55(1) of AP I includes a prohibition on the intentional use of methods, means of warfare or any kind of use of force which may be expected to cause such damage to the natural environment that it will prejudice the health or survival of the local population. AP I does not define the term "widespread, long-term and severe". Unlike Article 35(3) of AP I, however, it seems that Article 55

42 See A. P. V. Rogers, above note 14, pp. 177–178.

43 See ICRC Customary Law Study, above note 2, Rule 43, pp. 143–146.

44 ICRC Customary Law Study, above note 3, p. 885.

45 *Ibid.*, pp. 891, 889.

46 *Ibid.*, pp. 850, 852.

47 *Ibid.*, p. 900.

48 Article 56 of AP I states: "even where these objects are military objectives, if such an attack may cause the release of dangerous forces and consequent severe losses among the civilian population".

(1) implies a connection between the environment and humankind.⁴⁹ This particular meaning stems from the ICRC Commentary on the Additional Protocols, which makes it clear that the term “natural environment” should be interpreted in general terms, meaning that the natural environment does not only consist of objects that are indispensable to the survival of a civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water supplies and irrigation works – it also includes forests and other vegetation as well as fauna and other biological or climatic elements.⁵⁰

It is reasonably clear that the focus of Article 55(1) is the survival of the civilian population and the environment, which itself is protected against attacks during armed conflict. However, as the ICRC Commentary on the Additional Protocols has rightly noted, the words “care shall be taken in warfare to protect the natural environment”⁵¹ in the first paragraph of Article 55 seem to reduce the effect of the provision by allowing some latitude of judgment, as it excludes a great deal of short-term environmental damage. It can be reasonably assumed that this provision requires conflict parties to refrain from resorting to unconventional means and methods of warfare, such as chemical weapons,⁵² which could produce widespread, long-term and severe damage to the natural environment.⁵³ However, it would be a valid rationale under this provision for conflict parties to resort to using conventional means and methods of warfare such as cluster munitions (especially parties who regard cluster munitions as legitimate weapons) simply because such munitions are not of a nature to affect the natural environment for decades.⁵⁴ In all cases, however, it is widely accepted that the impact of such weapons goes beyond civilian casualties, as extensive sub-munition contamination can have far-reaching and widespread environmental consequences, hindering post-conflict reconstruction and development.⁵⁵

49 Adam Roberts, “Environmental Issues in International Armed Conflict: The Experience of the 1991 Gulf War”, *International Law Studies*, Vol. 69, 1996, p. 233.

50 ICRC Commentary on the APs, above note 5, para. 2126; K. Hulme, above note 25, pp. 12–13.

51 ICRC Commentary on the APs, above note 5, para. 2133.

52 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, 1974 UNTS 45, 13 January 1993 (entered into force 29 April 1997). For a discussion on the long-term impacts of chemical weapons, see Dhanasree Jayaram, “Unprecedented Environmental Impacts of Chemical and Biological Warfare: A Critical Appraisal”, *CBW Magazine*, Vol. 14, No. 2, 2021, available at: www.idsa.in/cbwmagazine/environmental-impacts-of-chemical-and-biological-warfare#footnote5_pc656nb. See also Edward A. Tanzman, “Environmental and Safety Obligations of the Chemical Weapons Convention”, *Proceedings of the Annual Meeting of American Society of International Law*, Vol. 88, 1994.

53 See Michael Bothe, Karl J. Partsch and Waldemar A. Solf, *New Rules for Victims of Armed Conflicts: Commentary on the Two 1977 Protocols Additional to the Geneva Conventions of 1949*, Martinus Nijhoff, The Hague, 2013, p. 390.

54 See Convention on Cluster Munitions, 2688 UNTS 39, 30 May 2008 (entered into force 1 August 2010).

55 See Javad Fares and Youssef Fares, “Cluster Munitions: Military Use and Civilian Health Hazards”, *Bulletin of the World Health Organization*, Vol. 96, No. 8, 2018; Kevin Riordan, “Convention on Cluster Munitions”, *UN Audiovisual Library of International Law*, 30 May 2008, available at: <https://legal.un.org/avl/ha/ccm/ccm.html>; Alex Frost, “Mitigating the Environmental Impacts of Explosive Ordnance and Land Release”, *Humanitarian Law and Policy*, 16 December 2021, available at: <https://blogs.icrc.org/law-and-policy/2021/12/16/environmental-impacts-explosive-ordnance/>.

Alongside AP I, there are a variety of international instruments and treaties that cover international norms governing the protection of the environment. These include the UN General Assembly resolutions, the Declaration of the UN Conference on the Human Environment (the non-binding Stockholm Declaration of 1972),⁵⁶ the Report of the UN Conference on Environment and Development (the non-binding Rio Declaration of 1992)⁵⁷ and the 1949 Geneva Conventions.⁵⁸

Only a couple of relative provisions within AP I and the non-binding 1976 ENMOD Convention mention the protection of the aforementioned objects as parts of the natural environment “in times of armed conflict”. As used in Article II of the ENMOD Convention, the term “environmental modification techniques” in the title “refers to any technique for changing – through the deliberate manipulation of natural processes – the dynamics, composition or structure of the earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space”. The Convention protects the natural environment through the prohibition of the use of environmental modification techniques that have severe, widespread or long-lasting impacts in the form of destruction, damage or injury to any other State Party. It does not set out sanctions for any State Party that violates the Convention.⁵⁹

AP I is one of the major instruments of IHL that governs the protection of the natural environment in armed conflicts, but it is pertinent to note that the provisions of AP I are only applicable to IACs; they do not cover environmental destruction during NIACs. Indeed, as treaty law neither the Geneva Conventions, AP I and AP II nor the Hague Regulations regulate environmental damage in NIACs. It appears, therefore, that only the “prohibition of attacks upon works and installations containing dangerous forces” contained in Article 15 of AP II could be (indirectly) relevant to the protection of the natural environment during NIACs.⁶⁰ However, it is worth noting here that the conduct of hostilities and other obligations set out in AP I and AP II apply as matters of customary law in NIACs. This is even more evident from Rule 43 of the ICRC Customary Law Study, according to which the natural environment may not be attacked unless it

56 Declaration of the United Nations Conference on the Human Environment, UN Doc. A/CONF.48/14/Rev.1, Stockholm, 5–16 June 1972, available at: www.un-documents.net/aconf48-14r1.pdf.

57 Rio Declaration on Environment and Development, Annex I of the *Report of the United Nations Conference on Environment and Development*, UN Doc. A/CONF.151/26, Vol. 1, Rio de Janeiro, 3–14 June 1992 (Rio Declaration), available at: www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf.

58 Consider AP I, Arts 51 (“protection of the civilian population”), 52 (“general protection of civilian objects”), 54 (“protection of objects indispensable to the survival of the civilian Population”), 55 (“protection of the natural environment”), 56 (“protection of works and installations containing dangerous forces”); and AP II, Art. 15 (“protection of works and installations containing dangerous forces”).

59 For more details, see Onita Das, *Environmental Protection, Security and Armed Conflict: A Sustainable Development Perspective*, Edward Elgar, Cheltenham, 2013, pp. 131–132.

60 Wil D. Verwey, “Protection of the Environment in Times of Armed Conflict: In Search of a New Legal Perspective”, *Leiden Journal of International Law*, Vol. 8, No. 1, 1995, pp. 29–30; James E. Bond, William J. Fenrick, Hans-Peter Gasser and Waldemar A. Solf, “Determining Customary International Law Relative to the Conduct of Hostilities in Non-International Armed Conflicts”, *American University Journal of International Law and Policy*, Vol. 2, 1987, p. 486.

is a military objective and its destruction is required by imperative military necessity. Furthermore, launching an attack against a military objective which may be expected to cause incidental damage to the environment which would be excessive in relation to the concrete and direct military advantage anticipated is prohibited. State practice establishes this as a norm of customary international law. Even though some States have not ratified AP I and AP II, the customary rules of IHL bind all States regardless of whether they are parties to the Geneva Conventions or their Additional Protocols.

It is especially important to note that the ILC Draft Principles, adopted on 20 May 2022, indicate that the international community of States should positively contribute to international efforts in order to protect the natural environment and natural resources during IACs and NIACs, where they recognize the importance and relevance of existing rules and call for them to be implemented and respected in armed conflicts. Eventually, the parties to a NIAC will be encouraged to apply the same rules that protect the environment in IACs.⁶¹ A majority of members of the ILC and the States in the Sixth Committee of the UN General Assembly agreed to apply the ILC Draft Principles to NIACs as well. According to the commentary on Draft Principle 1, no distinction is made between IACs and NIACs in terms of the protection of the natural environment.⁶²

Empirical test: Lessons from the use of force against IS

The US-led coalition's air strikes adversely impacted both civilians and energy resources in the regions under the control of IS in Iraq and Syria. As Terry D. Gill has argued, any civilians or civilian objects affected by an attack on an armed non-State actor (ANSA) would enjoy virtually the same degree of protection from the effects of hostilities under the legal regime applicable to NIACs as they enjoy under the regime on IACs.⁶³ Destroying oil wells under the control of an ANSA, therefore, might violate the provisions specifically aimed at protecting the environment during armed conflict, including Articles 35(3) and 55(1) of AP I. In a sense, even though AP I applies only to IACs, the parties to a NIAC are required to apply the same rules that protect the natural environment during all armed conflicts, as they are generally considered to reflect customary international law.⁶⁴ For the sake of IHL protection, this should also be considered with respect to the IHL principles of distinction and precaution and the

61 For general information, see Tara Smith, "Critical Perspectives on Environmental Protection in Non-International Armed Conflict: Developing the Principles of Distinction, Proportionality and Necessity", *Leiden Journal of International Law*, Vol. 32, No. 4, 2019; Hans-Peter Gasser, "For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action", *American Journal of International Law*, Vol. 89, No. 3, 1995.

62 See ILC Draft Principles, above note 15. For a discussion, see UNEP, "Why Legal Principles on War and Environment Matter", 20 August 2019, available at: www.unenvironment.org/news-and-stories/story/why-legal-principles-war-and-environment-matter.

63 Terry D. Gill, "Classifying the Conflict in Syria", *International Law Studies*, Vol. 92, 2016, p. 369.

64 ICRC Customary Law Study, above note 2, Rules 43–45, pp. 143–158. C. R. Payne, above note 2; C. Droegge and M.-L. Tougas, above note 2; ILA Study Group, above note 6, p. 325.

proportionality rule, independently of Articles 35(3) and 55(1). This is simply because the legality of attacks depends on the application of these principles,⁶⁵ which prohibit indiscriminate attacks on civilians and civilian objects, and any attack which may be expected to cause excessive incidental damage. More importantly, although attacks are carried out in different situations (deliberate targeting processes in which the expected incidental harm can be carefully assessed, or dynamic targeting in the heat of battle), the proportionality rule and the obligation to take feasible precautions prior to and during an attack to protect civilians where possible⁶⁶ apply to all attacks, regardless of the nature of the conflict (IAC or NIAC).⁶⁷ Accordingly, States are urged to incorporate such rules into their military manuals and instructions on IHL in a way that does not discriminate based on how a conflict is characterized.⁶⁸

Although the United States is not a State party to AP I and does not accept Article 55(1) of AP I as customary international law,⁶⁹ it cannot be said that the explicit obligations contained in Article 55(1) have not achieved the required near-universal adherence because of opposition by the United States. In support of this argument, the ICRC Customary Law Study includes a simplified version of Article 55(1) of AP I in Rule 45 to constitute customary international law, stating:

The use of methods and means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment is prohibited. Destruction of the natural environment may not be used as a weapon.⁷⁰

Notwithstanding this rule, there is no doubt that Article 55(1) excludes minor and short-term damage to the natural environment. It is, therefore, perfectly possible to argue that the protection of the natural environment under Article 55(1) of AP I is not sufficient since it does not afford adequate protection during times of armed conflict, and it appears that such protection must therefore be strengthened.⁷¹

65 See Thilo Marauhn and Stefan Kirchner, “Target Area Bombing”, in Natalino Ronzitti and Gabriella Venturini (eds), *The Law of Air Warfare: Contemporary Issues*, Eleven Publishing, Utrecht, 2006, pp. 102–103.

66 AP I, Arts 57, 58.

67 Emanuela-Chiara Gillard, *Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment*, Chatham House International Law Programme Research Paper, 2018, para. 3.

68 See ICRC Customary Law Study, above note 3, p. 845; A. Roberts, above note 49, p. 257.

69 In his remarks at the 70th UN General Assembly Sixth Committee on the Report of the ILC on the Work of Its 67th Session, Mark Simonoff, minister counsellor for legal affairs of the US Mission to the UN, argued that the United States is troubled by the presence among the principles of rules extracted from certain treaties that it does not believe reflect customary law – for example, the prohibition in AP I on attacks against the natural environment by way of reprisals. See Mark Simonoff, “U.S. Mission to the United Nations: Remarks at the 70th UN General Assembly Sixth Committee on Agenda Item 83: Report of the International Law Commission on the Work of its 67th Session, 11 November 2015”, in CarrieLyn D. Guymon (ed.), *Digest of United States Practice in International Law*, Office of the Legal Adviser, US Department of State, Washington, DC, 2015, p. 287. For a discussion, see J. E. Bond *et al.*, above note 60, p. 424. See also John R. Crook, “United States Responds to ICRC Study on Customary International Law”, *American Journal of International Law*, Vol. 101, No. 3, 2007.

70 Philippe Sands, *Principles of International Environmental Law*, Cambridge University Press, Cambridge, 2003, p. 314; ICRC Customary Law Study, above note 2, p. 151; M. Bothe *et al.*, above note 2, p. 574.

71 See Liesbeth Lijnzaad and Gerard J. Tanja, “Protection of the Environment in Times of Armed Conflict: The Iraq-Kuwait War”, *Netherlands International Law Review*, Vol. 40, No. 2, 1993, p. 182.

With regard to destruction of and attacks on oil refineries and oil storage facilities, it is hardly necessary to stress the grave danger to the natural environment that might follow for the civilian population as a matter of Article 55(1).⁷² Indeed, State practice considers the environment to be a *prima facie* civilian object. It is not considered to be a military objective under Rule 10 of the ICRC Customary Law Study, which provides that “[c]ivilian objects are protected against attack, unless and for such time as they are military objectives”. Therefore, indiscriminate attacks on such objects have generally been condemned.⁷³

In that regard, although there is an ongoing controversy about whether oil wells constitute installations containing dangerous forces, it has been argued that the examples given in Article 56 of AP I and Article 15 of AP II are not meant to be exhaustive, and a liberal construction could say that the release of the force of the oil fires and spills could be covered.⁷⁴

According to the International Court of Justice (ICJ),

States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objectives. Respect for the environment is one of the elements that go to assessing whether an action is in conformity with the principles of necessity and proportionality.⁷⁵

This is, in fact, the approach taken by the ICJ in the context of the protective nature of Article 55(1).⁷⁶ It is also evident from Article 35(1) of AP I, which is specifically reflective of the interest of States to be bound by this rule. Article 35(1) provides that the right of the warring parties to choose methods or means of warfare is not unlimited, and now there is sufficient State practice to support that this prohibition is considered a rule of customary international law, which is applicable in both IACs and NIACs.⁷⁷ In addition, the Committee Established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia opined that Article 55(1) may reflect current customary international law.⁷⁸

Evaluating the environmental damage that has resulted from the targeting of oilfields and installations under the control of IS in Syria and Iraq, and identifying

72 ICRC Commentary on the APs, above note 5, para. 2150.

73 ICRC Customary Law Study, above note 2, p. 34.

74 William M. Arkin, Damian Durrant and Marianne Cherni, *Modern Warfare and the Environment: The Case Study of the Gulf War*, Greenpeace International, Washington, DC, 1991, p. 140.

75 Nuclear Weapons Advisory Opinion, above note 23, para. 30. For a discussion on the disputable nature of Article 55(1) of AP I, see Karen Hulme, “Natural Environment”, in Elizabeth Wilmshurst and Susan Breau (eds), *Perspectives on the ICRC Study on Customary International Humanitarian Law*, Cambridge University Press, Cambridge, 2007.

76 For further discussion, see ILC Draft Principles, above note 15, Principle 13 and Commentary.

77 ICRC Customary Law Study, above note 2, p. 151. See also Peter J. Richards and Michael N. Schmitt, “Mars Meets Mother Nature: Protecting the Environment during Armed Conflict”, *Stetson Law Review*, Vol. 28, No. 4, 1999, p. 1075; Waldemar A. Solf, “Protection of Civilians against the Effects of Hostilities under Customary International Law and under Protocol I”, *American University International Law Review*, Vol. 1, No. 1, 1986, p. 134.

78 Y. Dinstein, above note 21, pp. 534–535.

the extent and level of the destruction of the oilfields and the impact on the environment, population and wildlife, requires particular expertise – but there is no doubt that environmental destruction is inevitable when natural resources are targeted. It is partly for this reason that the UN General Assembly, in its Resolution 43/47 adopted in 1992, “[u]rges States to take all measures to ensure compliance with the existing international law applicable to the protection of the environment in times of armed conflict”.⁷⁹

Most of the Syrian oilfields occupied by IS that were destroyed by US-led coalition forces⁸⁰ held underground reserves of crude oil, meaning that the damage to the natural environment as a result of explosions and fires would be widespread and severe. Any justification for the destruction of the natural environment based upon necessity, under Rule 43 of the ICRC Customary Law Study and Article 55(1) of AP I, depends on the “threshold level of the destruction/damage”. The issue, therefore, remains regarding the determination of the threshold of damage to the natural environment in a region of conflict. Based on the information currently available, it cannot be definitively stated that the US-led coalition’s air strikes against the oilfields under the control of IS led to significant environmental damages because of oil spills or fires. What is indisputable is that the present and long-term impacts of the destruction of those refineries are not known at present, and measuring them will be difficult, if not impossible. Determining pollution levels and assessing the risks to the civilian population and their environment in Syria or Iraq depends on detailed studies as well as the monitoring and evaluation of air, water and soil.

Although the US authorities have claimed that the White House had been reluctant to target oil wells held by IS, reports indicate that some US-led coalition forces regularly attacked oil wells and refineries that had been captured by the group, causing localized pollution.⁸¹ This practice, which aimed to stop oil revenues, had little effect on demand and caused the civilian population and armed groups to turn to informal oil-refining methods – a highly polluting process which adversely affected communities and the environment across Syria’s oil-producing areas. As a result, the massive displacement of parts of the Syrian population created environmental stresses in neighbouring countries.⁸² Even worse, some US-led coalition forces appeared to be unconcerned about the

79 UNGA Res. 47/37, 25 November 1992, para. 1.

80 It should be noted that many States within the US-led coalition do not accept the United States’ position on targetability of the natural environment during hostilities as related to targets that contribute to the war-sustaining capability of the enemy.

81 Wim Zwijnenburg and Annica Waleij, “Fire and Oil: The Collateral Environmental Damage of Airstrikes on ISIS Oil Facilities”, *New Security Beat*, 13 January 2016, available at: www.newsecuritybeat.org/2016/01/fire-oil-collateral-damage-airstrikes-isis-oil-facilities/; David C. Harary, “Environmental Decisions in the Context of War: Bombing ISIL’s Oil”, *Centre for Development and Strategy*, Vol. 2016, No. 2, 2016, available at: www.envirosagainstar.org/2017/07/27/environmental-decisions-in-the-context-of-war-bombing-isils-oil/.

82 See “Country Brief: Syria”, Conflict and Environment Observatory, 26 March 2018, available at: www.ceobs.org/country-brief-syria/; “Report Highlights Health and Environmental Impact of Makeshift Oil Refineries in Syria”, Conflict and Environment Observatory, 5 September 2016, available at: www.ceobs.org/report-highlights-health-and-environmental-impact-of-makeshift-oil-refineries-in-syria/.

environmental damage their attacks caused. As the Pentagon's press secretary, Rear Admiral John Kirby, pointed out, the direct and indirect impact of environmental destruction resulting from targeting the oilfields under the control of IS was not foremost in the minds of the US-led coalition. In a press briefing on 8 June 2015, Kirby stated:

I'm not an environmental expert. I cannot dispel the fact that in some of these targets there may still be some fires burning as a result of what was hit. ... The crude had to get trucked into these refineries to then get refined and then to be sold on the black market. So, you know, it is possible that at some of them there was not any. I just do not know. We are still working our way through that. But I cannot completely ignore the possibility that there might still be some oil fires burning because of this.⁸³

The obligation to protect natural resources as State property

As a general practice, the natural resources of territorial States are the property of those States, which have "permanent sovereignty over their natural resources" as a principle of customary international law, as recognized by the ICJ.⁸⁴ The rights and duties emanating from this principle remain in effect at all times, including during armed conflict and occupation.⁸⁵ States involved in armed conflict cannot resort to any particular armed actions that may damage the natural resources that are part of the environment for any reason, because such actions would touch upon the essential interests of other States, particularly the territorial State.⁸⁶

Even though attacks on State property during armed conflicts have been one of the most controversial issues in the context of IHL, the unnecessary destruction of property, even if that property is under the effective control of an Occupying Power (either a State or an ANSA), is a violation of IHL.⁸⁷ Contrary to the provision contained in Article 55(1) of AP I, which generally prohibits the destruction of the natural environment during armed conflicts, destruction or seizure of the property of an adversary, including property which is part of the natural environment, is allowed by "imperative necessity". In this regard, Article

83 See "Department of Defence Press Briefing by Rear Admiral Kirby in the Pentagon Briefing Room", DoD, 25 September 2014, available at: www.defense.gov/News/Transcripts/Transcript-View/Article/606932/departement-of-defense-press-briefing-by-rear-adm-kirby-in-the-pentagon-briefing/.

84 See ICJ, *Case Concerning Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)*, Judgment, 19 December 2005, paras 243–246; UNGA Res. 1803 (XVII), "Permanent Sovereignty over Natural Resources", UN Doc. A/RES/3171, 14 December 1962.

85 UNGA Res. 66/225, "Permanent Sovereignty of the Palestinian People in the Occupied Palestinian Territory, Including East Jerusalem, and of the Arab Population in the Occupied Syrian Golan Over Their Natural Resources", 13 January 2012; ICJ, *Armed Activities*, above note 84, paras 229, 244. See also S. P. Ng'ambi, above note 23, pp. 158–159; Karol N. Gess, "Permanent Sovereignty over Natural Resources: An Analytical Review of the United Nations Declaration and Its Genesis", *International and Comparative Law Quarterly*, Vol. 13, No. 2, 1964.

86 See Daniella Dam-de Jong, *International Law and Governance of Natural Resources in Conflict and Post-Conflict Situations*, Cambridge University Press, Cambridge 2015, p. 191.

87 See T. D. Gill, above note 63, p. 369.

147 of Geneva Convention IV has advanced this rule by providing that “extensive destruction and appropriation of property, *not justified by military necessity* and carried out unlawfully and wantonly” (emphasis added), is a grave breach of the Geneva Conventions, which form the core of IHL. This is highlighted by Rule 43(B) of the ICRC Customary Law Study, which provides that “[d]estruction of any part of the natural environment is prohibited, unless required by imperative military necessity”.⁸⁸ The property could be part of the territorial State’s natural resources, including energy resources such as oil that are part of the natural environment. The targeting of a territorial State’s property not justified by military necessity has also been prohibited by Rule 50 of the ICRC Customary Law Study. This rule has identified the prohibition of the “destruction or seizure of the property of an adversary unless required by imperative necessity” as a norm of customary international law which is already recognized in the Lieber Code (Articles 15 and 16) and Hague Convention IV (Article 23(g)).⁸⁹ This leads us to the main point at issue, which is that the destruction of property of an adversary, including any part of the natural environment (and notably, natural resources), not required by imperative military necessity, regardless of whether the damage reaches the widespread, long-term and severe threshold, is prohibited.⁹⁰

In a similar vein, the prohibition of the destruction of the natural environment, when it is not justified by necessity and is carried out wantonly, is an accurate reflection of customary international law. Further to this, the extensive destruction and appropriation of an enemy’s private and public property in IACs and NIACs, when unjustified by necessity and carried out unlawfully and wantonly, is considered to be a war crime under Article 8(2) of the Rome Statute of the International Criminal Court. More precisely, the Rome Statute has considered “[d]estroying or seizing the property of an adversary unless such destruction or seizure be imperatively demanded by the necessities of the conflict” as a war crime in NIACs.⁹¹ State practice explicitly establishes this rule as a norm of customary international law applicable in both IACs and NIACs.⁹²

Moreover, the destruction and seizure of property, when not demanded by the necessities of war, has been prohibited by Articles 22 and 23(g) of the Regulations Annexed to Hague Convention IV, which state:

88 ICRC Customary Law Study, above note 2, p. 143.

89 *Ibid.*, pp. 175–177.

90 ICRC, above note 15, Rule 13, p. 74.

91 It has been argued that the prohibition against extensive destruction and appropriation of property which is carried out unlawfully and wantonly also applies to enemy-owned natural resources and wealth. See ICRC Commentary on the APs, above note 5, p. 415. For a much more extended discussion of “unlawful and wanton extensive destruction and appropriation of property”, see Mohamed Elewa Badar, “Drawing the Boundaries of *Mens Rea* in the Jurisprudence of the International Criminal Tribunal for the Former Yugoslavia”, *International Criminal Law Review*, Vol. 6, No. 3, 2006, pp. 343–346. For further discussion, see Knut Dörmann, *Elements of War Crimes under the Rome Statute of the International Criminal Court: Sources and Commentary*, Cambridge University Press, Cambridge, 2004, pp. 485–486; Robert Cryer, Darryl Robinson and Sergey Vasiliev, *An Introduction to International Criminal Law and Procedure*, Cambridge University Press, Cambridge, 2019, p. 289.

92 ICRC Customary Law Study, above note 2, p. 177.

The right of belligerents to adopt a means of injuring the enemy is not unlimited. ... [I]t is especially forbidden ... [t]o destroy or seize the enemy's property unless such destruction or seizure be imperatively demanded by the necessities of war.

The most contentious issue is that energy resources, when used by States or ANSAs to sustain their capacity to wage war and to survive, could be targeted based on military necessity. This poses a particular problem in the assessment of proportionality. For example, it has been argued in the context of the 1990–91 Gulf War that the pollution arising from the burning of the targeted Kuwaiti oilfields and the deliberate spilling of oil into the sea – which killed an unknown number of birds, either by asphyxiation, starvation or drowning in the oil – was excessive in relation to the military advantage that may have been anticipated.⁹³ As the first Kuwaiti oil wells were ignited by Iraqi forces, there was public speculation that the fires and smoke were intended to impair coalition forces' ability to conduct air and ground operations.⁹⁴ The damage to the natural environment as a result of oil fires is believed to have impacted the local wildlife in different ways; it has included severe air pollution throughout Kuwait, acid rain, spikes in the mortality rates of local wildlife, destruction of or changes in the habitats that were used by species through their life cycle, and limitation of the amount of food available for carnivorous species.⁹⁵ Viewed from this perspective, therefore, the burning of Kuwaiti oil wells was generally dealt with under the proportionality rule. As Dinstein has argued, although oil wells constitute military objectives, their systematic destruction does not offer a definite military advantage within the meaning of proportionality.⁹⁶

In this regard, the actions of the United States, particularly around the oil facilities under the control of IS, were significant. According to the United States, energy resources that have been occupied by IS and are necessary to its survival as its main revenue source can be legitimately targeted as “war-sustaining objects”.⁹⁷ The United States does not accept that the prohibition against attacks on works and installations containing dangerous forces can be sustained absolutely, if, under the circumstances at the time, they are lawful military objectives. Generally, the United States' general practice is based on the legality of attacks on economic targets that indirectly but effectively support the enemy's operations, in order to gain a definite military advantage.⁹⁸ The United States is of the view that parts of the natural environment cannot be made the object of

93 International Law and Policy Institute (ILPI), *Protection of the Natural Environment in Armed Conflict: An Empirical Study*, Oslo, 2014, p. 17; Y. Dinstein, above note 21, pp. 543–544.

94 Michael N. Schmitt, “War and the Environment: Fault Lines in the Prescriptive Landscape”, *Archiv des Völkerrechts*, Vol. 37, No. 1, 1999, 25, pp. 38–39.

95 ILPI, above note 93, p. 17.

96 Y. Dinstein, above note 21, pp. 543–544.

97 For more details, see Ryan Goodman, “The Obama Administration and Targeting ‘War-Sustaining’ Objects in Non-International Armed Conflict”, *American Journal of International Law*, Vol. 110, No. 4, 2016.

98 See ILA Study Group, above note 6, p. 341. See also DoD, above note 3, section. 5.6.6.2, pp. 313–314.

attack unless they constitute military objectives, as traditionally defined, and that parts of the natural environment may not be destroyed unless required by military necessity, but it has repeatedly declared that the prohibition on attacks against the natural environment is overly broad and ambiguous and not part of customary law.⁹⁹

The United States has tried to justify the coalition's air strikes on oil facilities under the control of IS – indeed, it has interpreted the concept of military objectives under Article 52 of AP I in very broad terms and has considered war-supporting economic facilities to be military objectives.¹⁰⁰ However, the United States' basis for targeting those facilities is highly controversial; the legality of attacks on war-sustaining or purely economic targets as legitimate military objectives has not been accepted in practice by other States, by the ICRC or by military doctrine, and it cannot be demonstrated that such objects make an effective contribution to military action and that their destruction confers a definite military advantage to the coalition in the circumstances ruling at the time.¹⁰¹ The permissibility of targeting energy resources such as oil facilities and refineries is controversial, especially in those situations in which the enemy is not using them for military purposes. The idea is that the targeting of oil facilities and refineries to stop refined oil from being supplied for the enemy's military purposes fits logically within the scope of fighting a war. However, if such attacks are intended to stop the sale of smuggled oil, the proceeds of which would finance the enemy's activities, only part of which includes military action, the determination of such attacks as military objectives is potentially much more controversial.¹⁰²

The United States' approach seems problematic because, first, oil resources were not the only revenue source of IS; the group was able to generate income from many other sources. According to a study by the Centre for the Analysis of Terrorism, IS was generating billions of dollars of income from criminal activities (including extortion, kidnap and ransom), foreign donations and the trafficking

99 See DoD, above note 3, p. 1192; UN General Assembly, *Protection of the Environment in Relation to Armed Conflicts: Comments and Observations Received from Governments, International Organizations and Others*, UN Doc. A/CN.4/749, 6 October 2021, pp. 84–86; Theodore Richard, *Unofficial United States Guide to the First Additional Protocol to the Geneva Conventions of 12 August 1949*, Air University Press, Montgomery, AL, 2019, p. 113; W. Hays Parks, "Asymmetries and the Identification of Legitimate Military Objectives", in Wolff Heintschel von Heinegg and Volker Epping (eds), *International Humanitarian Law Facing New Challenges: Symposium in Honour of Knut Ipsen*, Springer, Berlin and Heidelberg, 2007, pp. 65, 89, 101.

100 See DoD, above note 3, pp. 313–314; ILA Study Group, above note 6, pp. 340–341. For the US approach to AP I, see George H. Aldrich, "US Prospects for United States Ratification of Additional Protocol I to the 1949 Geneva Conventions", *American Journal of International Law*, Vol. 85, No. 1, 1991.

101 David Turns, "Military Objectives", in Rain Liivoja and Tim McCormack (eds), *Routledge Handbook of the Law of Armed Conflict*, Routledge, London, 2016, p. 154.

102 Kenneth Watkin, "Targeting 'Islamic State' Oil Facilities", *International Law Studies*, Vol. 90, 2014, pp. 504–505.

of antiquities, as well as from natural resources.¹⁰³ Moreover, the permanent members of the UN Security Council deplored the violation of IHL and expressed their deepening concern over the widening of the conflict through the escalation of attacks on purely civilian targets, and on the oil installations of littoral States such as Iraq.¹⁰⁴

Furthermore, it is difficult to justify targeting energy resources as State property under “necessity”. As pointed out by the ICJ in its Nuclear Weapons Advisory Opinion, States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objectives. Respect for the environment is one of the elements that go into assessing whether an action conforms with military necessity and proportionality.¹⁰⁵

In the case of IS, the main point is the nature and activities of the oil facilities and installations. In other words, it has to be clear whether or not the oil facilities under the control of IS had a military nature and contributed effectively to its military campaigns. It should also be clear whether IS used the oil facilities for military purposes. If they are used for military purposes, they fall under Article 52(2) of AP I and could be considered as military objectives. If there is a semblance of doubt, they fall under Article 52(3) of AP I, according to which the object should be considered as a civilian object and cannot be directly targeted.

In this respect, a distinction has to be made between refined oil, which is contained in silos, and crude oil, which is still situated in the ground and cannot be moved. Crude oil cannot be used for military purposes and, therefore, cannot make an effective contribution to military action since it is not suitable for transport.¹⁰⁶ Put differently, crude oil in the ground is an immovable raw material, which is not susceptible to direct military use.¹⁰⁷ To highlight this with an actual example from case law and practice, it is worth looking at the 1956 judgment of the Court of Appeal of Singapore in the *Singapore Oil Stocks* case, in which the Court established that immovable resources also include subterranean oil reserves.¹⁰⁸ In that sense, crude oil is not a war munition (*munitio de guerre*)

103 Laurence Bindner and Gabriel Poirot, *ISIS Financing*, Center for the Analysis of Terrorism, Paris, 2016, available at: <https://cat-int.org/wp-content/uploads/2016/06/ISIS-Financing-2015-Report.pdf>; Hussein Banai, “International and Regional Responses: An Appraisal”, in Feisal al-Istrabadi and Sumit Ganguly (eds), *The Future of ISIS: Regional and International Implications*, Brookings Institution Press, Washington, DC, 2018, p. 154; Abdul Basit, “Foreign Fighters in Iraq and Syria – Why So Many?”, *Counter Terrorist Trends and Analyses*, Vol. 6, No. 9, 2014, p. 7.

104 UN Security Council, “Statement by the President”, UN Doc. S/PV.2730, 22 December 1986, p. 3.

105 Nuclear Weapons Advisory Opinion, above note 23, para. 30.

106 For more details, see K. Hulme, above note 25, pp. 198–200.

107 This is an argument advanced in the sense of Article 53 of the Hague Regulations, which provides that “[a]n army of occupation can only take possession of cash, funds, and realizable securities which are strictly the property of the State, depots of arms, means of transport, stores and supplies, and, generally, all movable property belonging to the State which may be used for military operations”.

108 Court of Appeal of Singapore, *N. V. de Bataafsche Petroleum Maatschappij and Others v. The War Damage Commission*, Judgment, 13 April 1956, in *International and Comparative Law Quarterly*, Vol. 5, No. 1, 1956, p. 93.

and therefore is not subject to destruction. As Elihu Lauterbach has argued, only items which could be used in combat, and items which do not require processing of a costly, elaborate or lengthy character in order to make them suitable for use in combat, can be considered war munitions with an effective contribution to military action.¹⁰⁹ In contrast, refined oil, which is derived from crude oil, can be transported; in other words, refined oil is movable and susceptible to direct military use, and therefore may be subject to loss of protection against direct attack. From this viewpoint, even if it is accepted that the United States' practice of targeting refined oil production installations as dual-use targets¹¹⁰ is justifiable under necessity, it must be clarified that this practice refers only to the refined oil products under the control of IS as part of its revenue. This type of energy is transportable, and the environmental damage caused by attacks upon it might not be widespread or long-term. This is not the case for crude oil, since it is situated in the ground; targeting such an energy source would cause long-term and widespread damage. This is because crude oil is an immovable property that has not been extracted and requires processing of an elaborate or lengthy character to be used in combat, and the targeting of such resources might cause unnecessary damage to the natural environment.¹¹¹

According to UNEP, burning crude oil releases a wide range of pollutants, including soot and gases that can cause skin irritation and shortness of breath.

109 Elihu Lauterpacht, "The Hague Regulations and the Seizure of Munitions de Guerre", *British Yearbook of International Law*, Vol. 32, 1956, p. 226. For an extensive and critical discussion, see Evan J. Wallach, "The Use of Crude Oil by an Occupying Belligerent State as a Munition de Guerre", *International and Comparative Law Quarterly*, Vol. 41, No. 2, 1992, pp. 287–310.

110 It is noteworthy that IHL does not recognize any class of dual-use objects and only defines military objectives. Therefore, anything outside this formula is a civilian object and cannot be attacked. It has also been argued that there is no intermediate category of dual-use objects – either something is a military objective, or it is not. Keeping this in mind, the point is that refined oil production installations might be considered military objectives depending on their contribution to the enemy's military action and if the enemy's military effectiveness is reduced by destroying them. See A. P. V. Rogers, *Law on the Battlefield*, 3rd ed., Manchester University Press, Manchester, 2012, p. 111. For further discussion, see Christopher J. Greenwood, "Customary International Law and the First Geneva Protocol of 1977 in the Gulf Conflict", in Peter Rowe, *The Gulf War 1990–91 in International and English Law*, Routledge, New York, 1993; Y. Dinstein, above note 21, pp. 523–524.

111 To make sense of the link between the whereabouts of crude oil and the long-term and widespread harmful effects of its destruction during conflicts, it is worth noting that most oil reservoirs contain 1–5% sulphur. When oil is burned, sulphur reacts with oxygen to create sulphur dioxide, which is classed as a pollutant by the Environmental Protection Agency. Sulphur dioxide is a poisonous gas that can fuse with air and water to create sulphuric acid, the key constituent of acid rain. This is the reason why oil goes through refining processes, as these processes remove the sulphur that is found in crude oil. Burning crude oil therefore creates an inevitable level of risk, as it results in further sulphur-rich precipitation, which accelerates deforestation, acidifies waterways, compromises agricultural crops, contaminates drinking water sources and kills aquatic life. For further details, see "A Complete Guide to Sulphur in Fuel", *Petro Online*, 11 December 2021, available at: www.petro-online.com/news/analytical-instrumentation/11/breaking-news/a-complete-guide-to-sulphur-in-fuel/56845; Roy A. Giacomazzi and Max F. Homfeld, "The Effect of Lead, Sulfur, and Phosphorus on the Deterioration of Two Oxidizing Bead-Type Catalysts", *SAE Transactions*, Vol. 82, No. 3, 1973; Savannah Bertrand, "Climate, Environmental, and Health Impacts of Fossil Fuels", Environmental and Energy Study Institute, fact sheet, 17 December 2021, available at: www.eesi.org/papers/view/fact-sheet-climate-environmental-and-health-impacts-of-fossil-fuels-2021.

UNEP reported that during the war with IS in Iraq, fumes from burning stockpiles of sulphur dioxide, and oil wells that were set ablaze, led to further suffering for civilians in Iraqi Kurdistan.¹¹² Note in this regard that most of the US-led coalition's targets were IS's crude oil collection points.¹¹³ Massive environmental damage resulting from the air strikes is the reason why they are questionable under the customary principle of distinction between civilian objects and military objectives.

As mentioned above, although IS has made millions of dollars from oil revenues, it is not reasonable to assume that its survival was based only on its captured oil resources. In the wake of the US-led coalition's air strikes against oil facilities and installations under the control of IS in Iraq and Syria, the group has maintained a diversified revenue stream.¹¹⁴ Hence, targeting those installations in order to degrade the group's revenue stream funding its military operations did not serve any obvious military purpose, and has not been successful. Those objects that are only used to generate revenue for a belligerent's war effort do not render a definite "military advantage" and are therefore not military objectives within the meaning of Article 52(2) of AP I.¹¹⁵ Recall in this context that Article 52 requires an attack to result in a definite military advantage. As we have seen, according to the United States, economic targets that indirectly but effectively support and sustain the enemy's war-fighting capability can be targeted as legitimate military objectives.¹¹⁶ Unlike the United States, however, the ICRC has taken a restrictive approach to the scope of Article 52, ruling out any advantage which is arguably indeterminate.¹¹⁷ When it comes to the destruction of oil production facilities, if the coalition's intent was simply to shut IS's revenue streams down, then the relationship between the act and the anticipated advantage would likely be judged to be overly attenuated¹¹⁸ since the attacks could not halt IS's military activities and its cross-border terrorism.

112 See "ISIL's 'Scorched Earth Policy' Creating Environmental and Health Havoc in Mosul, Warns UN", *UN News*, 27 October 2016, available at: <https://news.un.org/en/story/2016/10/543902-isils-scorched-earth-policy-creating-environmental-and-health-havoc-mosul-warns>.

113 For example, on 5 January 2015, coalition forces conducted fourteen air strikes in Syria, hitting five of IS's crude oil collection points and a crude oil pipeline near Dayr az Zawr. See DoD, "Combined Joint Task Force Continues Airstrikes against ISIL", 5 January 2015, available at: www.defense.gov/News/Article/Article/603879/; US Department of State, "Airstrikes Destroy ISIL Infrastructure in Syria, Iraq", 11 August 2015, available at: www.defense.gov/News/News-Stories/Article/Article/613334/airstrikes-destroy-isil-infrastructure-in-syria-iraq/. Coalition forces also launched three strikes and destroyed four oil wellheads and an oil pump jack near Abu Kamal on 25 November 2016. That same day, they launched two strikes and destroyed three pieces of oil-refining equipment and an oil wellhead in the west of Abu Kamal in Dayr Az Zawr. See Christopher Woody, "Watch a US-led Coalition Airstrike Destroy Part of ISIS' Oil Network Near the Iraq-Syria Border", *Insider*, 29 December 2016, available at: www.businessinsider.com/us-led-coalition-airstrike-isis-oil-syria-2016-12?r=US&IR=T. See also Helene Cooper and Anne Barnard, "Warplanes Blast Militants' Refineries in Syria, Targeting a Source of Cash", *Washington Post*, 24 September 2014, available at: www.nytimes.com/2014/09/26/world/middleeast/isis-revenue-sources-remain-crucial-target-us-says.html; Michael R. Gordon and Eric Schmitt, "U.S. Steps Up Its Attacks on ISIS-Controlled Oil Fields in Syria", *Washington Post*, 12 November 2015, available at: www.nytimes.com/2015/11/13/us/politics/us-steps-up-its-attacks-on-isis-controlled-oil-fields-in-syria.html.

114 UNSC Res. 2253, 17 December 2015.

115 See D. Turns, above note 101, p. 154; ILA Study Group, above note 6, p. 341.

116 M. N. Schmitt, above note 94, pp. 27–28.

117 ICRC Commentary on the APs, above note 5, p. 636, para. 2020.

118 M. N. Schmitt, above note 94, p. 53.

Non-military activities, including energy trading, smuggling and collecting taxes from regions under their effective control, are the most important factors ensuring the survival of ANSAs.¹¹⁹ Importantly, increasing revenue in different ways will ultimately make ANSAs powerful enough to engage in armed conflict. It is important, therefore, to distinguish between their revenue sources. In that sense, the United States' war-sustaining theory is problematic also because targeting only one of the revenue sources of a violent military group – citing it as a war-sustaining capability in terms of the attacking State's unilateral assessment – would appear to be even more difficult to justify under necessity. What is certain is that the military activities, cross-border terrorist actions and growing financial strength of IS were not halted by the coalition's air strikes on their captured oilfields and installations. Even if it is accepted that any revenue source belonging to ANSAs can be targeted as a legitimate military objective – which is certainly not a widely accepted view amongst States – targeting the civilian population working at oil installations under the control of IS, or all of the population paying taxes to IS, may not be justified since these individuals did not directly participate in hostilities.¹²⁰ As a basic rule, civilians benefit from protection against direct attack unless and for such time as they take direct part in hostilities.¹²¹ There is a consensus among the international community of States that distinguishing between civilians and combatants during armed conflict is a customary rule of IHL since civilians do not constitute a military advantage for any attacker under any circumstances.

Bearing this in mind, targeting Iraqi and Syrian crude oilfields under the effective control of IS as sources of its revenues based on the “legitimate military objectives” justification would appear problematic. In this regard, the 1990–91 Gulf War was one of the most notorious cases since the war caused long-term and widespread environmental damage. The 752 Kuwaiti oil wells that were set on fire burned for more than nine months – thick smoke blocked out the sun, temperatures

119 See Philippe Le Billon, “The Political Economy of War: Natural Resources and Armed Conflict”, *Political Geography*, No. 20, 2001; Michael Ross, “Oil, Drugs, and Diamonds: The Varying Roles of Natural Resources in Civil War”, in Karen Ballentine and Jake Sherman (eds), *The Political Economy of Armed Conflict: Beyond Greed and Grievance*, Lynne Rienner, London, 2003; Marina Eleftheriadou, “Elements of ‘Armed Non-State Actors’ Power: The Case of Al-Qaeda in Yemen”, *Small Wars and Insurgencies*, Vol. 25, No. 2, 2014; Tim Eaton et al. (eds), *Conflict Economies in the Middle East and North Africa*, Chatham House, London, 2019, p. 13.

120 For a discussion, see ICRC Customary Law Study, above note 2, Rule 6, pp. 19–24.

121 For the sake of clarity, the ICRC's *Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law* provides a legal reading of the notion of “direct participation in hostilities”, which comprises two elements: “hostilities” and “direct participation” therein. The concept of “hostilities” refers to the (collective) resort by the parties to the conflict to means and methods of injuring the enemy, and “participation in hostilities” refers to the (individual) involvement of a person in these hostilities. Furthermore, individual participation in hostilities may also be described as “direct” or “indirect”, depending on the quality and degree of such involvement. It is worth highlighting here that the notion of “direct participation in hostilities” has evolved from the phrase “taking no active part in the hostilities” used in Article 3 common to the four Geneva Conventions. The ICRC has therefore made it clear that the terms “direct” and “active” refer to the same quality and degree of individual participation in hostilities and should be interpreted in the same manner in both IACs and NIACs. By providing this legal reading of the notion of “direct participation in hostilities”, the ICRC aimed to strengthen the implementation of the principle of distinction. See Nils Melzer, *Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law*, ICRC, Geneva, 2009, pp. 5, 43–44.

dropped locally, and the fallout of oil, soot, sulphur and greasy acid rain fouled the surrounding land. In addition, air quality was severely impaired over the short term by the plumes of smoke, which stretched at one point for over 100 kilometres. Additionally, land, ground and surface water were contaminated and may have caused adverse health effects by the release of oil compounds, to the detriment of vegetation, animals and the local population. Air pollution throughout Kuwait was tantamount to excessive injury to the natural environment and the civilian population in breach of the proportionality rule, and the fires caused black rain and smoke in Turkey and Iran, as well as in Bulgaria, the southern Soviet Union, Afghanistan and Pakistan.¹²² As a result of Iraq's burning of Kuwaiti crude oil in underground fields, Security Council Resolution 687 determined that the targeting of Kuwaiti oil resources was an obvious violation of existing international law and that Iraq is "liable under international law for any direct loss [or] damage – including environmental damage and the depletion of natural resources – [resulting from] its unlawful invasion and occupation of Kuwait".¹²³ Moreover, the Security Council and the United States were convinced that IHL constituted a sufficiently solid basis for the protection of the natural environment in times of armed conflict. Although the United States and Iraq were not contracting parties to AP I, and the Security Council is not clear about the exact principles and rules of IHL, the question of the legality or illegality of the Iraqi military operations vis-à-vis the natural environment can be addressed from two angles: (1) damage resulting from attacks on the environment as such, and (2) damage arising from the use of the environment as a method or instrument of warfare.¹²⁴

Holding States responsible for the destruction of energy resources in NIACs

The attribution of overall responsibility for environmental destruction is still disputed. This is due to the disputed nature of the general prohibition of

122 Meredith DuBarry Huston, "Wartime Environmental Damages: Financing the Cleanup", *University of Pennsylvania Journal of International Law*, Vol. 3, No. 4, 2002, pp. 909–910; Jozef Goldblat, "Legal Protection of the Environment against the Effects of Military Activities", *Bulletin of Peace Proposal*, Vol. 22, No. 4, 1991, p. 402; Y. Dinstein, above note 21, p. 544. See also Christopher C. Joyner and James T. Kirkhope, "The Persian Gulf War Oil Spill: Reassessing the Law of Environmental Protection and the Law of Armed Conflict", *Case Western Reserve Journal of International Law*, Vol. 24, No. 1, 1992.

123 UNSC Res. 687, 3 April 1991, para. 16. It is worth noting, however, that Iraqi actions against the natural environment in Kuwait generated near-universal condemnation but little tangible normative progress in addressing environmental damage during armed conflicts. As Schmitt has discussed, this was even more apparent in Resolution 687, in which the basis for Iraqi liability was the wrongful occupation of Kuwait and the damage ensuing therefrom, rather than any violation of environmental proscriptions. Not surprisingly, the environmental trauma suffered during the short war led to no new hard law on the subject. See M. N. Schmitt, above note 94, pp. 27–28.

124 See L. Lijnzaad and G. J. Tanja, above note 52, p. 169. For an extensive discussion, see Ali Mohamed Al-Damkhi, "Kuwait's Oil Well Fires, 1991: Environmental Crime and War", *International Journal of Environmental Studies*, Vol. 64, No. 1, 2007; 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", *Journal of Armed Conflict Law*, Vol. 2, No. 1, 1997.

widespread, long-term and severe damage to the natural environment, the controversies surrounding its customary legal nature in AP I and the ENMOD Convention, and the fact that the United States is not a party to AP I. Nonetheless, as was discussed earlier, there is a consensus among the international community of States that destroying or seizing the enemy's property without imperative necessity and disproportionate attacks that impact the environment in IACs and NIACs are direct violations of IHL.¹²⁵ As noted above, the Rome Statute considers these acts to also constitute serious violations of the laws and customs applicable in both IACs and NIACs, and they are therefore regarded as war crimes.

Moreover, the duty not to cause significant environmental damage is an accepted customary rule of IHL on the conduct of hostilities in both IACs and NIACs.¹²⁶ Military operations that cause damage to the natural environment are in violation of this principle, which is laid down in Article 55(1) of AP I. Although neither Article 3 common to the four Geneva Conventions nor AP II, which are dedicated to NIACs, contain any provisions on war crimes or recognize criminal responsibility for serious breaches, the Rome Statute is apparently following a compromise policy by expanding the scope of what constitutes environmental crimes, and this policy seems to preserve the military policies of the States involved in the conflicts. Article 8(2)(b)(iv) of the Rome Statute states that intentionally launching an attack in the knowledge that such an attack will cause incidental loss of life or injury to civilians, damage to civilian objects, or widespread, long-term and severe damage to the natural environment, which would be excessive in relation to the concrete and direct overall military advantage anticipated, will be a serious violation of the laws and customs applicable in IACs.¹²⁷ However, the ambiguity of various interpretations has created grounds for controversy on the scope of environmental crimes under the

125 See ILC Draft Principles, above note 15, Principle 14; ICRC Customary Law Study, above note 2, Rule 43 (C), p. 143.

126 See UNEP, above note 28, p. 28; ICRC Customary Law Study, above note 2, p. 143. For a relevant discussion, see Bruce A. Harlow and Michael E. McGregor, "International Environmental Law Considerations during Military Operations Other than War", *International Law Studies*, Vol. 69, 1996.

127 The requirement that a proscribed attack should be "excessive" in relation to the concrete and direct overall military advantage anticipated constitutes a major obstacle to the application of this provision. The intentions and thought behind the widespread, long-term and severe environmental damage must be the "knowledge" that the environmental damage is disproportionate to the "overall military advantage anticipated". Put differently, before an attack is allowed, excessive damage to civilian objects resulting from the attack must be outweighed by the direct military advantage which accrues to the attacker. In that sense, prosecution of the commander of the attack will depend on detailed knowledge of the alleged perpetrator based on his "foreseeable" perceptions at the time, and the knowledge of what "widespread, long-term and severe damage" means – in other words, will the attack cause such a level of damage, and will the damage probably be disproportionate to the anticipated advantage of the military operation? However, it remains unclear whether a commander of a State involved in an armed conflict can be expected to be able to identify potential widespread, long-term and severe damage as a result of his or her attacks. See Ryan Gilman, "Expanding Environmental Justice after War: The Need for Universal Jurisdiction over Environmental War Crimes", *Colorado Journal of International Environmental Law and Policy*, Vol. 22, No. 3, 2011, p. 455; Steven Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, Intersentia, Cambridge, 2015, p. 210; M. N. Schmitt, above note 94, p. 35.

Rome Statute, which is likely to be enough to justify military operations against energy resources that will lead to environmental damage. This is simply because the three modifiers of damage – “widespread, long-term and severe” – and the term “natural environment” are not defined in the Rome Statute.¹²⁸

IHL confers protection to civilians, civilian objects and the natural environment, which is civilian in character. In that regard, one may refer to Article 51(5)(b) of AP I, according to which any attack that is expected to cause excessive loss of civilian life, injury to civilians and/or damage to civilian objects is prohibited. In essence, these kinds of military operations are evidently against the principle of distinction between civilian objects and military objectives. As noted earlier, despite the impossibility of identification of the “long-term, widespread and severe” impact of such operations in the future, the serious damage inflicted on the natural environment and the indirect impact on human health and wildlife are undeniable. Thus, expanding the scope of what constitutes environmental crimes under the Rome Statute would make it even more difficult to hold perpetrators accountable. Rather, enhancing the clarity of the conditions for the identification of environmental war crimes could potentially serve an even more useful purpose in terms of IHL’s protection and its rationality. It is worth noting, as an aside, that there is currently ongoing consideration of how environmental crimes may feature in accountability efforts regarding the conflict in Ukraine.¹²⁹

Concerns about the threats to human health and the natural environment from pollution caused by armed conflict have forced the UN Environment Assembly to adopt a Resolution on Pollution Mitigation and Control in Areas Affected by Armed Conflict or Terrorism,¹³⁰ which addresses the loss of environmental governance as well as the coping strategies that communities affected by pollution are often forced into by armed conflicts. In accordance with the Resolution,

the long-term socio-economic consequences of the degradation of the environment and natural resources resulting from pollution caused by armed conflict or terrorism, which include, *inter alia*, the loss of biodiversity, the loss of crops or livestock, and the lack of access to clean water and agricultural land, the negative and sometimes irreversible impacts on ecosystem services and their impact on sustainable recovery, [contribute] to further forced displacement related to environmental factors.

128 See Knut Dörmann, “War Crimes under the Rome Statute of the International Criminal Court, with a Special Focus on the Elements of Crimes”, *Max Planck Yearbook of United Nations Law*, Vol. 7, 2003, pp. 384–387; Jessica C. Lawrence and Kevin Jon Heller, “The First Ecocentric Environmental War Crime: The Limits of Article 8(2)(B)(IV) of the Rome Statute”, *Georgetown Environmental Law Review*, Vol. 20, No. 1, 2007, pp. 94–95; Mark A. Drumbl, “Waging War against the World: The Need to Move from War Crimes to Environmental Crimes”, *Fordham International Law Journal*, Vol. 22, No. 1, 1998, pp. 127–128.

129 See UNGA Res. ES-11/2, UN Doc. A/ES-11/L.2, 24 March 2022. See also ASEAN Parliamentarians for Human Rights, “Joint Statement on Environmental Crimes in Ukraine”, 30 May 2022, available at: <https://reliefweb.int/report/ukraine/joint-statement-environmental-crimes-ukraine>.

130 See UN Environment Assembly Res. 3/1, “Pollution Mitigation and Control in Areas Affected by Armed Conflict or Terrorism”, UN Doc. UNEP/EA.3/Res.1, 30 January 2018.

In terms of the statements used by the Resolution, including “irreversible impacts on ecosystem services”, the coalition’s air strikes and military operations on refined and crude oil resources in Iraq and Syria, which are considered part of the natural environment, might be characterized as internationally wrongful acts that need to be evaluated within the context of the current legal framework.

Furthermore, pollution resulting from attacks on energy resources has an indirect impact on human health and therefore poses risks for people in vulnerable situations, in violation of the environmental norms of IHL. In that regard, Article 55(1) of AP I is the key instrument of IHL, and it prohibits operations that are intended or may be expected to cause damage to the natural environment and to human health.¹³¹ As has already been evidenced by the aftermath of the 1990–91 Gulf War, the resulting pollution and environmental damage from burning oil wells threatens human health and livelihoods. In other words, air, soil and maritime pollution from oil spillages and fires is the main environmental consequence stemming from the destruction of energy resources that are part of the natural environment.¹³²

As reaffirmed in the so-called Rio Declaration on Environment and Development, “human beings are at the centre of concerns for sustainable development [and] they are entitled to a healthy and productive life in harmony with nature”.¹³³ This is, in fact, a reflection of the principle of protecting of human life and health by limiting the impact of armed conflict as the primary objective of IHL. By contrast, the compatibility of such operations with the principle of precaution requires the perpetrator to consider all options when making targeting decisions, including verifying the target, the timing of the strike (for instance, considering whether to attack at a time when there might be fewer civilians around), the weapons used, and warnings and evacuations for the civilian population in the area. Therefore, there must be a balance between military necessity and proportionality. In other words, any harm to the civilian population has to be balanced against military advantage within the meaning of Article 51(5)(b) of AP I, which prohibits any attacks that are expected to cause excessive loss of civilian life, injury to civilians and/or damage to civilian objects. The term “excessive” in AP I calls for a balance to be struck between military advantage and potential harm to the civilian population.¹³⁴

The only legitimate military aim is to weaken the military capacity of the enemy while taking into consideration that civilians and civilian objects must be protected against attacks, as the primary aim of IHL. In essence, necessity is inadmissible if the purpose for which the measure was taken (for instance, environmental destruction) was itself contrary to IHL. Moreover, belligerents

131 For more details, see Pierre-Marie Dupuy and Jorge E. Viñuales, *International Environmental Law*, Cambridge University Press, Cambridge, 2018, pp. 413–417.

132 See ILPI, above note 93, p. 14; UNEP, above note 16, pp. 56–57.

133 Rio Declaration, above note 57, Principle 1.

134 See Christopher J. Greenwood, “Current Issues in the Law of Armed Conflict: Weapons, Targets and International Criminal Liability”, *Singapore Journal of International and Comparative Law*, Vol. 1, No. 2, 1997, pp. 461–462; ICRC Customary Law Study, above note 2, Rule 1, p. 14.

have the obligation to protect the natural environment from widespread, long-term and severe damage even when the target is a military objective and the incidental harm is proportional. Parties must use only those means and methods of warfare that do not cause such damage to the natural environment, even if the attack is considered lawful and proportionate.

Therefore, it seems that the sole way to untie this inextricable knot in trying to hold perpetrators responsible for environmental crimes during armed conflicts is that protection might be bestowed by other rules of IHL for that purpose. The rules regarding the protection of “State property” contained in Article 23(g) of Hague Convention IV and the relevant rules that reflect customary IHL might be considered as the basis for protecting the natural environment through the identification of States’ natural resources as their property. As was discussed earlier, this is particularly obvious in Rules 43 and 50 of the ICRC Customary Law Study, both of which prohibit the destruction of property of an adversary, including natural resources, not required by imperative military necessity, regardless of whether the damage reaches the “widespread, long-term and severe” threshold.

Conclusion

This article has examined the legality of the destruction of energy resources during armed conflicts. The main purpose was to determine how, when and to what extent the destruction of energy resources that are part of the natural environment may be acceptable under IHL. To this end, the article has explored the extent to which energy resources fulfil the IHL definition of military objectives under customary IHL and Article 52 of AP I. The article has highlighted that the natural environment may not be attacked unless it is a military objective, and that destruction of any part of the natural environment is prohibited unless required by imperative military necessity. Relatedly, energy resources as components of the natural environment can be targeted if they make an effective contribution to the military actions of the enemy and their destruction, capture or neutralization offers a definite military advantage within the meaning of Article 52(a) of AP I. However, if an element of the environment is lawfully attacked because it constitutes a military objective, depending on the scale of the attack there may be long-term environmental damage beyond the actual destruction. This is precisely subject to Article 55(1) of AP I, which embodies a general obligation to protect the natural environment against widespread, long-term and severe damage, while excluding a great deal of short-term environmental damage. The key point made in this regard is that this threshold is absolute and any widespread, long-term and severe damage to the natural environment is prohibited regardless of necessity or proportionality considerations. Therefore, there is a need to avoid excessive long-term damage to the natural environment even when targeting energy resources as military objectives within the meaning of IHL. In other words, such resources should not be targeted if the attack is likely to cause incidental harm to

the environment which would be excessive in relation to the direct military advantage that the attack would be expected to confer. This is simply because even in the proportionality assessment, civilians and civilian objects are still protected. Therefore, precaution will come into play before and during an attack, even if the target is considered a legitimate military objective and the incidental damage is considered proportional.

The article was, especially, devoted to the United States' actions based on war-sustaining theory as part of US domestic law and its jurisdiction; this theory characterizes the destruction of the natural environment during hostilities as being related to targets that contribute to the "war-sustaining capability" of the enemy. Starting with the US doctrine indicating that the destruction of energy resources controlled by IS has been exercised under governmental authority, I have questioned the lawfulness of this argument within the context of the general principles and rules of IHL, including the distinction principle and the proportionality rule. Looking at the lawfulness of the US-led coalition's air strikes on oilfields controlled by IS in Iraq and northern Syria, and in light of Article 56 of AP I on works and installations containing dangerous forces and based on the provisions on State property, the article has explored the threshold of extensive environmental damage under Article 55(1) of AP I "prohibiting attacks on the natural environment". Having differentiated between the two provisions, I have clarified the extent to which Articles 56 and 55(1) could protect energy resources, mainly oil wells. The major point made is about the disputed nature of the general prohibition of widespread, long-term and severe damage to the natural environment and the ongoing controversies surrounding its customary legal nature under AP I regarding the protection of the natural environment in times of armed conflict. I have argued that the uncertainty of the term "widespread, long-term and severe damage" and the exact threshold for damage contained in Article 55(1) paved the way for the United States to target natural resources during the war with IS.

The destruction of oilfields and installations must comply with all relevant IHL rules and principles that regulate the conduct of hostilities and afford civilians protection, but it must clear whether or not the enemy's oil facilities had a military nature and contributed effectively to its military campaigns. In that regard, a distinction has to be made between refined oil and crude oil in underground fields. This is because crude oil cannot be used for military purposes since it is not suitable for transport, and therefore it cannot make an effective contribution to military action. Crude oil is an immovable raw material that is not susceptible to direct military use. From this viewpoint, even if it is accepted that the United States' practice of targeting refined oil production installations as dual-use targets¹³⁵ is justifiable under military necessity, it must be clarified that the United States' practice refers only to refined oil products that provide fuel for IS's armed forces (war-fighting), and not to products that generate revenue for its "war effort" (war-sustaining). The aim of the strikes on those latter products was to stop oil revenues, but it had little effect on demand and caused the civilian population and armed

135 See above note 110.

groups to turn to informal oil-refining methods, which adversely affected the environment across Syria's oil-producing areas. As a result, the massive displacement of parts of the Syrian population created environmental stresses in neighbouring countries. Unlike objects that contribute to a belligerent's war-fighting capability, any other object that merely contributes towards the "war-sustaining capability" of a belligerent does not qualify as a military objective, and the application of the definition of a military objective in this situation would in itself violate the principle of distinction.¹³⁶ As was discussed earlier, this is also the position of the ICRC. Ultimately, weakening the military capacity of the enemy is the only legitimate military aim, and civilians and civilian objects must be protected against attacks. The point is simply that belligerents cannot use those means and methods of warfare that may cause widespread, long-term and severe damage to the natural environment, even if the attack is considered lawful and proportionate. Belligerents have the obligation to protect the natural environment from such damages even when the target is a military objective and the incidental harm is proportional.

Finally, we have seen how destroying or seizing the enemy's property – as it relates to natural resources – without imperative necessity in IACs and NIACs is a direct violation of IHL. Despite the disputed nature of the general prohibition of widespread, long-term and severe damage to the natural environment and the controversies on its customary legal nature in AP I and the ENMOD Convention, the 1998 Rome Statute considers these acts to constitute serious violations of the laws and customs applicable in both IACs and NIACs, and they can, therefore, be considered as war crimes. The "prohibition of targeting the natural environment" and indirect protection of the natural environment under Article 55(1) of AP I might be recognized as general principles of IHL within the context of the Geneva Law, the primary object of which is the protection of civilian objects during hostilities. Nonetheless, due to the ambiguity in the threshold requirements, including the "widespread, long-term and severe" criteria, the evaluation of State responsibility for the destruction of natural resources (where an indirect impact on the environment, human health and wildlife is inevitable) based upon these conditions would be difficult under the law of State responsibility.

However, State responsibility for the destruction of energy resources as part of the natural environment is contained under other provisions which protect civilian objects and State property, and their customary legal natures are not a subject of controversy. Concerning the responsibility of the US-led coalition States for the destruction of natural resources during the war with IS, it was discussed in this article that the only way to counteract the lack of a systematic mechanism to prevent States from causing environmental damage or from looting natural resources is for the protection of natural resources to be drawn up under another set of rules of IHL for that purpose. This would be proved by the rules surrounding the protection of State property contained in Article 23(g) of

136 See ILA Study Group, above note 6, p. 341.

Hague Convention IV and Article 147 of Geneva Convention IV, which prohibit the “destruction or seizure of the property of an adversary unless required by imperative necessity.” Reference to these rules will prohibit such destruction or seizure as a norm of customary international law applicable in both IACs and NIACs.