Warfare's Silent Victim: International Humanitarian Law and the Protection of the Natural Environment during Armed Conflict

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Introduction

Armed conflict changes everything.[1] It is the ultimate human-induced crisis that has devastating consequences for the environment.[2] A report by the Conflict and Environment Observatory has identified how armed conflict affects the environment before, during, and after its conclusion.[3] For example, 'the environmental impacts of wars start long before they do', given that building and sustaining military forces requires vast quantities of resources.[4] A study done by Lancaster University shows that the United States' military is one of the largest polluters in history emitting more carbon dioxide than most countries.[5] Indeed, as war commences, the means and methods of armed conflict, such as the targeting of industrial, oil, and energy facilities and other scorched earth tactics, cause many different forms of environmental harm that can scar a landscape and damage ecosystems for years after a conflict has ended.[6]

The toll taken on the environment fuels a vicious cycle of conflict. A report by the International Committee of the Red Cross ('ICRC') has identified the interconnectedness of climate change and armed conflict, in that the effects of armed conflict contribute to climate change, with climate change, in turn, fuelling further conflict.[7] This is particularly problematic given that the latest instalment of the Intergovernmental Panel on Climate Change's Sixth Assessment Report sets out in clear terms that humanity is at a crossroads in that the decisions made now affect whether or not a liveable future can be secured.[8] As such, it is of critical importance that a concrete set of rules are imposed at the international level to prohibit environmental damage above a certain threshold and hold those responsible for such damage accountable. This can be achieved through a review of the body of law known as International Humanitarian Law ('IHL').

IHL seeks to restrict the means and methods of armed conflict through 'treaties and customs that limit the use of violence in armed conflict and protect civilians and persons who are no longer participating in hostilities'.[9] However, IHL's anthropocentric focus

1 Ángela María Amaya Arias et al., Witnessing the Environmental Impacts of War: Environmental Case Studies from Conflicts around the World (PAX, 2020).
2 ibid.
3 CEOBs, 'How Does War Damage the Environment?' (4 June 2020) <https://ceobs.org/how-does-war-damage-the-environment/> accessed 10 April 2021.
4 ibid.
5 Patrick Bigger, 'The US Military Consumes More Hydrocarbons than Most Countries - With a Massive Hidden Impact on the Environment' (Lancaster University, 20 June 2019) <https://www.lancaster.ac.uk/news/us-military-consumes-more-hydrocarbons-than-most-countries-with-a-massive-hidden-impact-on-the-climate> accessed 10 April 2021.
6 CEOBs (n 3).
7 ICRC, When Rain Turns to Dust: Understanding and Responding to the Combined Impact of Armed Conflict and the Climate and Environmental Crisis on People's Lives (2020).
8 IPCC, Climate Change 2022: Impacts, Adaptation, and Vulnerability (Summary for Policymakers) (IPCC WG II 6th Assessment Report, 2022) 36.
9 Marco Sassòli and Antoine Bouvier, *How Does Law Protect in War? Cases, Documents, and Teaching Materials on Contemporary Practice in International Humanitarian Law* (2nd edn, International Committee of the Red Cross 2006) 81.

has stunted the development of thorough and coherent laws for the protection of the environment during armed conflict, and what has been achieved has been criticised as ineffective.[10]

This article aims to highlight the ways in which IHL fails to protect the environment during armed conflict adequately. Firstly, this article shall look at how the means and methods of armed conflict affect the environment, both directly and indirectly. Secondly, it will provide a detailed analysis of current IHL provisions for the protection of the environment. Thirdly, the article shall look at potential future developments in the law, such as the creation of a new treaty on environmental protection during armed conflict, as well as the wider use of demilitarised zones.

Before these themes are discussed, this article shall look at historical attitudes towards environmental damage during armed conflict.

Historical attitudes

'When you besiege a city for a long time, making war against it in order to take it, you shall not destroy its trees by wielding an axe against them. You may eat from them, but you shall not cut them down'.[11]

Wartime damage to the environment has a history as long as humankind itself, dating back to when homo sapiens first began to organise into groups.[12] From the Peloponnesian Wars, when the Spartans laid waste to Athenian fields, to modern-era conflicts, such as the burning of Romanian oil fields by the Allies during World War II, the environment has been a 'silent victim' of armed conflict.[13]

The origin of the protection of the environment during armed conflict arguably has its roots in the religion-based morals of Judeo-Christian and Islamic traditions.[14] The above quotation, taken from the book of Deuteronomy, is often cited as an early source for restrictions on environmental damage during wartime and may even be an early iteration of the prohibition of the 'wanton' destruction principle,[15] as laid out in the recent *Customary International Humanitarian Law Study* published by the ICRC.[16] Indeed, in Islam, the First Caliph, Abu Bakr al-Saddiq, is recorded as having instructed his military commander on the rules of war: 'stop, O people, that I may give you the rules on the battlefield…do not cut down fruitful trees; do not slaughter the enemy's sheep, cows or camels…do not burn date palms, or inundate them'.[17]

However, attempts to reduce environmental harm during armed conflict based on religious, moral, and philosophical grounds, such as the view that the environment should be protected during the war due to its inherent worth, have been pushed aside in favour of an anthropocentric approach. [18] This approach enables us to do with plants as we 'please' and with animals as we 'desire', given that the natural environment is viewed simply as a raw material to be manipulated at will for the satisfaction of human beings.[19] This is reflected in the Judeo-Christian tradition, which states, 'go out and subdue the earth'.[20] The latter view is one propounded by the founder of the Just War principles, Saint Thomas Aquinas, and has proven to be the 'philosophical justification for the human-centred orientation of the international statutes currently offering protection to the environment in times of armed conflict'.[21]

This explains why war-waging parties turn a blind eye to the harm done to the environment during armed conflict. However, it was not until the morally reproachable tactics of the U.S. Army during the Vietnam War that the history of the relationship between warfare and the environment took a turn, and concrete legal, environmental protections were introduced.

I. How the means and methods of armed conflict affect the environment

Public awareness of the effects of armed conflict on the environment first became manifest during the Vietnam War,[22] which is notorious for the disastrous environmental impact of the United States' counterinsurgency warfare.[23] This can be seen in the U.S. army's bombing campaign that left 'moonlike craters' in the landscape and the bulldozing of 325,000 hectares of forest, decimating the country's rich flora and fauna.[24] However, the most disastrous environmental impact of the Vietnam War was the use of herbicides as part of *Operation Ranch Hand.* This was an 'aggressive' programme of chemical warfare, which involved the U.S army spraying approximately 4.5 million hectares of Vietnamese land with herbicides containing the deadly chemical dioxin.[25]

The environmental warfare tactics deployed by the U.S. 'spawned condemnation across civil society'[26] and prompted the international community to address environmental protection during armed conflict. The results were twofold: the Convention on the Prohibition of Military or Any Other Hostile Uses of Environmental Modification Techniques ('ENMOD')[27] and the inclusion of environmental protections, namely Articles 35(3) and 55, in the

10 Rosemary Rayfuse, 'War and the Environment: International Law and the Protection of the Environment in Relation to Armed Conflict – Introduction to the Special Issue' (2013) 82 Nordic J Int'l L 1.
11 *The Holy Bible*, Deuteronomy: 19-20 (English Standard Version).
12 Margaret MacMillan, *War: How Conflict Shaped Us* (Profile Books, 2020) 5.
13 United Nations Environmental Programme, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law* (UNEP, 2009) 4.
14 Carson Thomas, 'Advancing the Legal Protection of the Environment in Relation to Armed Conflict: Protocol I's Threshold of Impermissible Environmental Damage and Alternatives' (2013) Nordic J Int'l L 85.
15 ibid.
16 Jean-Marie Henckaerts et al., *Customary International Humanitarian Law* (ICRC and CUP 2005) Rule 44.
17 Heba Aly, 'Islamic Law and Rules of War' (*Middle East Eye*, 12 February 2015) <https://www.middleeasteye.net/big-story/islamic-law-and-rules-war> accessed 28 January 2021.
18 Gregory Reichberg and Henrik Syse, 'Protecting the Natural Environment in Wartime: Ethical Considerations for the Just War Tradition' (2000) 37 Journal of Peace Research 449, 445.
19 ibid.
20 *The Bible* (n 11) Genesis 1:28.
21 ibid 457.
22 UNEP (n 13) 8.
23 Eliana Custao, 'From Ecocide to Voluntary Remediation Projects: Legal Responses to Environmental Warfare in Vietnam and the Spectre of Colonialism' (2018) 19 Melb J Int'l L 494.
24 Jay Austin and Carl Bruch (eds) *The Environmental Consequences of War: Legal Economic and Scientific Perspectives* (Cambridge University Press 2000) 1, 48.
25 Trien T Nguyen, 'Environmental Consequences of Dioxin from the War in Vietnam: What Has Been Done and What Else Could be Done?' (2009) 66 Int'l J Environmental Studies 9.
26 Custao (n 23) 500.
27 The Convention on the Prohibition of Military or Any Other Hostile Uses of Environmental Modification Techniques, 1977.

Protocol Additional to the Geneva Conventions of 12 August 1949 and relating to the Protection of Victims of International Armed Conflicts (Protocol I) 1977 ('API').[28]

However, ENMOD and API were far less ambitious results than what the legal and scientific communities advocated for, and it was not long after their creation that the adequacy and usefulness of the two conventions were called into question following the Gulf War 1990-1991.[29]

Even though there has not been a return to the scale of the environmental warfare tactics seen during the Vietnam War, modern conflicts continue to have far-reaching effects extending beyond that of human suffering, often causing serious damage to the environment. Unfortunately, the environment is *always* a victim of armed conflict due to the basic nature of the means and methods of warfare.[30] Indeed, one study indicates that over 90% of the major armed conflicts between 1950 and 2000 took place in countries containing biodiversity hotspots.[31]

Environmental damage during wartime occurs both directly and indirectly and may have transboundary and long-lasting effects, persisting for decades after the conflict has ended.[32] The UNGA recognised the 'dire effects' that certain means and methods of warfare have had on the environment in the wake of recent conflicts causing environmental damage and depletion, reinforcing the urgency of these issues at the highest level.[33]

I.I Direct Effects

Environmental damage and degradation occurs as a direct consequence of military operations, not only intentionally but also as unintended 'collateral' damage.[34] Take, for example, the Gulf War 1990-1991, which was an armed campaign waged by a US-led coalition of states in response to Iraq's invasion and annexation of Kuwait.[35] It was during this conflict, only fourteen years after the creation of API and ENMOD, that the world once again witnessed the use of ecological warfare as Saddam Hussein weaponised oil.[36] This conflict clearly illustrated how the 'intentional use of the environment as a means of warfare…may cause severe damage in the form of marine, terrestrial and aerial contamination'.[37]

The Gulf War was the first conflict after the 1970s that brought international attention to the effects that armed conflict has on the environment.[38] During this conflict, the retreating Iraqi army set aflame 613 out of Kuwait's 810 oil wells, burning an estimated one billion gallons of oil.[39] This generated a Florida-sized plume of toxic smoke that hung over Kuwait, drifting into neighbouring countries. It is estimated that these fumes contributed 2% of global carbon emissions in 1991.[40]

On top of this, the wells that did not ignite instead gushed oil into the vulnerable desert landscape creating vast 'oil lakes' up to 10km wide and 13cm deep.[41] It is estimated that 5% of Kuwaiti territory became covered in a thick 'tarcrete' as the oil dried, killing flora and fauna, as well as permanently degrading the soil.[42]

The smoke and oil spills had a catastrophic impact on wildlife: 22-50% of the bird population in Kuwait was killed, the habitat of a population of endangered sea turtles was destroyed, causing unknown numbers to die, and acid rain significantly raised the pH levels in freshwater inlets killing vast numbers of fish, and further threatened the endangered dugong species.[43]

However, the environmental damage inflicted by the Iraqi army did not end there. At the conclusion of the first Gulf War, with Iraq's defeat, a number of minority Shia groups rebelled against the Baathist regime. One such group was the Ma'dan people. The Ma'dan have a rich and ancient culture associated with the Mesopotamian Marshland, which was also used as a safe haven for groups opposed to the government due to its inaccessible and isolated canals and islands.[44] As part of the Iraqi army's counterinsurgency campaign against groups such as the Ma'dan, the Mesopotamian Marshes were drained in what the UN has called an 'ecological catastrophe' on a par with deforestation in the Amazon.[45]

In addition to placing the 5000-year-old culture of these ancient people in 'serious jeopardy of coming to an abrupt end', the impact on the area's wildlife has been devastating.[46] A key site for migratory birds travelling from Siberia, the marshlands' disappearance placed 40 species of waterfowl at risk and caused serious reductions in their numbers.[47] Further, species of fish and mammals unique to the marshes are believed to be extinct, including the smooth-coated otter and the babel fish, with endangered birds, such as the Purple Heron, suffering a 50% mortality rate.[48]

The environmental modification by the Baathist regime to achieve near-total erasure of this marshland also impacted the weather and climate of the country. With the marshland no longer there to act

28 Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I) 1977.
29 Custao (n 23) 501.
30 Siamak Khorram and X. Long Dai, 'Environmental Impacts of the 1991 Persian Gulf War: A Remote Sensing Perspective' (1999, Centre for Earth Observation, North Carolina State University) 2560.
31 Thor Hanson et al., 'Warfare in Biodiversity hotspots' (2009) 23 Conversation Biology 578.
32 UNEP (n 13) 4.
33 UNGA A/RES/47/37 (9th February 1993) UN Doc A/47/591.
34 Adrian Loets, 'An Old Debate Revisited: Applicability of Environmental Treaties in Times of International Armed Conflict Pursuant to the International Law Commission's 'Draft Articles on the Effects of Armed Conflict on Treaties" (2012) 21(2) Review of European Community and International Law 127.
35 Karen Hulme, 'Armed Conflict, Wanton Ecological Devastation and Scorched Earth Policies: How the 1990-1991 Gulf Conflict Revealed the Inadequacies of the Current Laws to Ensure Effective Protection and Preservation of the Natural Environment' (1997) 2 Journal of Armed Conflict Law 45, 47.
36 ibid.
37 International Law and Policy Institute, *Protection of the Natural Environment in Armed Conflict: An Empirical Study* (2014) Report 12.
38 ibid 16.
39 Muhammad Sadiq, *The Gulf War Aftermath: An Environmental Tragedy* (Pulwer Academic Press 1993) 52.
40 Kris Hirschmann, *The Kuwaiti Oil Fires* (Facts on File Press 2005) 23.
41 Antoinette Mannion, 'Environmental Impact of War and Terrorism' (University of Reading Press 2003) Geographical Paper no. 169.
42 ibid.
43 John Loretz, 'The Animal Victims of the Gulf War' (1991) Physicians for Social Responsibility 34.
44 ILPI (n 37) 26.
45 UNEP, 'UNEP Releases Report on the Demise of the Mesopotamian Marshes' (Press Release, 13 August 2001) UNEP/98.
46 ibid.
47 ibid.
48 ibid.

as a buffer zone against desert winds, they now blow 'unhindered' at temperatures over 40 degrees Celsius, damaging and eroding arable land on a permanent basis.[49]

At the conclusion of the Gulf War, Iraq formally accepted its state responsibility for 'any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait'.[50] The United Nations Compensation Commission was charged with monitoring and assessing the impacts of the Gulf War on the environment and public health in 'victim countries'.[51] Consequently, a total of $243 million was awarded to the governments of Kuwait, Saudi Arabia, Iran, Jordan, and Syria in 2001.[52] A further $8.3 million was issued to six other governments for costs incurred assisting the Gulf countries in the abatement and prevention of environmental damage resulting from the conflict.[53]

Despite the fact that environmental damage arising as a direct result of armed conflict can be severe, far-reaching, and long-lasting, such damage only represents the tip of the iceberg, with the vast majority of instances arising indirectly.

I.II Indirect Effects

The indirect consequences of armed conflict on the natural environment can be as severe, if not more severe, than those directly resulting from a conflict.[54] Indeed, their more hidden nature makes them more subversive and difficult to tackle as they often arise from the complex circumstances of non-international armed conflicts ('NIACs').

A key case study is that of the Democratic Republic of Congo ('DRC'). In June 1960, the DRC gained its independence from Belgium; however, in its transition to independence, the country witnessed a period of political turmoil, which eventually erupted into brutal violence.[55] In 1965, a coup d'état led by Mobutu Sese Seko, which was supported by Belgium and the USA, saw three decades of 'oppression, kleptocracy, and collapse of state institutions'.[56] This laid the groundwork for the two wars that followed in 1996 and 1998. The Second Congo War officially ended in 2003; however, the continued fragility of the state has allowed for continued violence in parts of the country, exacerbating the DRC's effort to build a lasting peace.[57]

The DRC's almost chronic state of armed conflict, from 1996 onwards, has fuelled a melting pot of intersecting issues that contribute to severe environmental damage across the region. The DRC ranks fifth in the world for animal and plant biodiversity and has the highest levels of biodiversity on the continent of Africa.[58]

However, the continuing conflict has resulted in three main areas of environmental damage: deforestation, harm to National Parks, and the exploitation of natural resources. Each shall be considered in turn:

Deforestation

Deforestation carried out by refugees in the DCR is an indirect effect of armed conflict, causing severe environmental damage. It is estimated that 2.4 million people have been made refugees by the conflict.[59] Fleeing from danger, refugees set up informal settlements that sprawl over the landscape, with 90% of these being unregulated, which means that they often spread uncontrollably over areas of rich biodiversity.[60]

The consequence of human displacement on the environment is that the refugees cut down swathes of forest for fuel and housing at an unstoppable rate. For example, in just three days in 1994, Mount Goma was completely deforested by refugees who sought out wood to create shelter.[61] Needless to say, deforestation on this scale causes widespread habitat destruction and loss of biodiversity, as well as contributes to global warming, given the fact that the DRC's rainforest is the largest in Africa.[62]

National Parks

The ongoing conflict in the DRC has had severe impacts on the country's National Parks, particularly the heavily protected Virunga National Park, a UNESCO World Heritage site. Home to countless unique species of wildlife, the Park's integrity is under threat by armed groups that use the dense cover of the forest for shelter and to stay hidden. Its threatened status is confirmed by its placement on the list of World Heritage in Danger.[63]

Armed groups, using automatic weapons, have been involved in large-scale poaching of the Park's wildlife for 'food purposes and for war-sustaining trade in ivory and bushmeat'.[64] This has had serious consequences for wildlife, as seen by the hippopotamus population in the DRC, which is now on the brink of extinction.[65] Poaching also has an economic incentive as a means by which armed groups fuel their military campaigns. For example, the Lord's Resistance Army ran the ivory trade in the Congo's Garamba National Park for years to fund its campaigns.[66]

Further, the Park is home to mountain gorillas that are targeted by armed groups, such as the Rugendo family of gorillas that was slaughtered in 2007. Under international law, mountain gorillas are protected by instruments such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (also known

49 Hassan Partow, *The Mesopotamian Marshlands: Demise of an Ecosystem (Early Warning and Assessment Technical Report)* (UNEP 2001) 10.
50 UNSC, Resolution 687 (3 April 1991) paras 16-19.
51 Peter Sand, 'Compensation for Environmental Damage from the 1991 Gulf War. United Nations Activities: UNCC' (2005) 35 Environmental Policy and Law Journal 244, 246.
52 ibid.
53 ibid.
54 Austin and Bruch (n 24) 362.
55 Gwinyayi Dzinesa and Joyce Laker, Post-Conflict Reconstruction in the DRC (2011) Centre for Conflict Resolution.
56 ibid.
57 ibid.
58 ILPI (n 37) 34.
59 UNEP, *The DRC: Post-Conflict Environmental Assessment Synthesis for Policy Makers* (2011) 26.
60 Asit Biswas and Cecilia Tortajada, 'Environmental Impact of the Rwandan Refugees of Zaire' (1996) 25(6) Ambio 405.
61 ibid.
62 UNEP (n 59) 36.
63 Guy Debonnet and Kes Hillman-Smith, 'Supporting Protected Areas in a Time of Political Turmoil: The Case of World Heritage Sites in the DRC' (2004) 14(1) Parks 9.
64 Britta Sjöstedt, 'The Role of MEAs in Armed Conflict: 'Greenkeeping' in Virunga Park. Applying the UNESCO World Heritage Convention in the Armed Conflict of the DRC' (2013) Nordic J' Int'l Law 82, 132.
65 Christopher Day, "Survival Mode': Rebel Resilience and the Lord's Resistance Army' (2019) 31 Terrorism and Political Violence 966.
66 ibid.

as 'CITES')[67] and the Agreement on the Conservation of Gorillas and Their Habitats.[68] Despite the fact that conservation efforts have increased the number of mountain gorillas in the DRC, they still face constant danger. Indeed, the motivation for armed groups to kill the gorillas in the Park is simple: 'kill the gorillas, and there will no longer be a reason to protect the Park'.[69] Without protection from park rangers, Virunga would be open to the pillage of its natural resources in order to fuel military activities.

Exploitation of Natural Resources

In recent years, concern has been raised by the UN about the role of natural resources in generating revenue for the instigation and continuation of armed conflicts.[70] This is particularly prevalent in the DRC, which contains, amongst many other valuable resources, 60-80% of the world's coltan reserves. Coltan is used in the manufacture of electrical components of computers and mobile phones.[71] For $300 per pound, the Rwandan army and the Hutu militia monopolised the DRC's coltan trade, selling it on to the USA in order to finance their military campaigns.[72]

The 2010 Mapping Report on the DRC noted that it was at the start of the first war in 1996 that natural resource exploitation first became militarised.[73] This exploitation became increasingly attractive as the conflicts in the DRC changed shape and dragged on, not just for financing the campaigns of armed groups but also as a means of personal enrichment for political and military leaders. In this sense, natural resources became a driving force behind the war in the DRC.[74]

The exploitation of natural resources in the DRC, enabled by political instability and lack of governance caused by years of conflict, has resulted in mass deforestation, and loss of wildlife and habitat. International corporations such as De Beers and Shell exacerbate this problem by engaging in the trade of 'conflict resources', such as diamonds, timber and oil, from war-torn countries like the DRC.[75] This unregulated and illegal pillage, enabled by conflict, causes a 'chain of extinction' threatening the existence of African wildlife.[76]

Given that every component part of the environment is vulnerable during armed conflict, it is necessary to analyse the applicable law to determine whether IHL adequately protects the environment during wartime.

67 The Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1963.
68 The Agreement on the Conservation of Gorillas and Their Habitats, 2007.
69 Sophia Benz and Judith Benz-Schwarzburg, 'Great Apes and New Wars' (2010) 12 Civil Wars 400.
70 International Law Commission, *Second Report on Protection of the Environment in Relation to Armed Conflict by Marja Lehto, Special Rapporteur* (UNGA, 2019) A/CN.4/728.
71 OHCHR, *Report on the Mapping Exercise Documenting the Most Serious Violations of Human Rights and International Humanitarian Law Committed within the Territory of the DRC Between March 1993 and June 2003* (August 2010) 350.
72 ILPI (n 37) 36.
73 OHCHR (n 71).
74 ibid.
75 ILPI (n 37) 36.
76 Benz and Benz-Schwarzburg (n 69).

II. Critical Analysis of Applicable Law

Before 1976, the word 'environment' did not feature in any treaty on the law of war. It was not until the aftermath of the Vietnam War that 'serious attempts were made to impose conventional law limits on the environmental damage resulting from hostilities'.[77] Arising from a surge of anti-war sentiment and with concern for the environment reaching a new high, API and ENMOD were adopted, setting codified standards for environmental protection during armed conflict.

IHL provisions protect the environment during an armed conflict in two ways: direct protection by treaty and indirect protection by the general principles of IHL.[78]

II.I Direct Protection

The direct protection of the environment during armed conflict is provided by two treaties, namely API and ENMOD. We shall look at each in turn before considering issues of conflict classification.

API

API was the first international treaty to provide direct protection of the environment during International Armed Conflicts ('IACSs'), as outlined in Article 35(3) and Article 55. Article 35(3) prohibits means and methods of warfare that are intended to or may be expected to cause 'widespread, long-term and severe damage to the environment'.[79] Article 55 repeats this prohibition and makes note that damage to the natural environment prejudices the health and survival of the human population.[80]

Even though these two key Articles appear similar, they are not duplicates. The International Committee of the Red Cross's ('ICRC') commentary to API explains the differing approaches of Articles 35(3) and 55.[81] Article 35(3) broaches the problem from the point of view of methods and means of warfare, reflecting principles of 'Hague Law', whereas Article 55 focuses on the survival and health of the population and creates a protected object, i.e., the environment, reflecting 'Geneva Law'.[82]

However, the effectiveness of Articles 35(3) and 55 is undermined by the number of States that remain non-parties to API, such as the USA, Israel, Pakistan, Iran, India, and Turkey. This is problematic given the military power and political influence of the likes of the USA, which has not ratified API because it is seen as 'too broad'.[83] Further, the USA opposes the recognition of Articles 35(3) and 55 as international customary law, as stated in Rule 45 of the ICRC's customary IHL study.[84] It is for this reason that McCoubrey

77 Michael Schmitt, 'Humanitarian Law and the Environment' (2000) 28 Denv J Int'l L& Pol'y 265, 267.
78 Michael Bothe et al., 'International Law Protecting the Environment During Armed Conflict' (2010) 92 International Review of the Red Cross 879, 6.
79 API (n 28) art 35.
80 ibid. art 55.
81 ICRC, *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* (Martinus Nijhoff / International Committee of the Red Cross 1987) 663.
82 Schmitt (n 77) 275.
83 ibid. 277.
84 Henckaerts et al. (n 16) Rule 45.

contends that there should be new calls, preferably by the UNGA, to encourage non-parties to existing instruments, like API and II, to ratify these instruments as 'the primary way forward'.[85]

Furthermore, in the 2009 report, *Protecting the Environment During Armed Conflict*, the UN Environmental Programme ('UNEP') stated that Articles 35(3) and 55 do not adequately protect the environment during armed conflict due to the stringent and imprecise threshold required to demonstrate prohibited damage.[86] The problem with these key Articles is their 'operative core' that imposes a triple and cumulative standard of 'widespread, long-term and severe' that must be met before environmental damage is prohibited.[87]

In both Articles, there is difficulty regarding the quantum of harm prohibited. The requirements of 'widespread, long-term and severe' are not defined by API, or anywhere else, resulting in an 'elevated, uncertain and imprecise threshold that significantly narrows [the Articles'] scope of application'.[88] This is especially troublesome given that each individual requirement must be met in respect of the environmental damage to be prohibited.

The publication of the ICRC's 2020 updated *Guidelines on the Protection of the Natural Environment in Armed Conflict* ('Guidelines') offers some guidance on the interpretation of these Articles.[89] Rule 2 sets out detailed recommendations on how each component of the 'widespread, long-term and severe' requirement should be understood.[90] It states: 'widespread' should be understood as a scale of several hundred square kilometres; 'long-term' should take into account the duration of the indirect effects of the use of a given method or means of warfare; and 'severe' should constitute the disruption or damage to an ecosystem, with normal damage caused by troop movement and artillery fire in conventional warfare falling outside the scope of this prohibition.[91] However, these guidelines are non-binding and rely upon each State adopting the Guidelines at the national level. Given that certain States are yet to ratify API, such as the USA, Pakistan, Turkey, and Israel, the usefulness of these Guidelines is questionable.[92]

From an environmental point of view, Articles 35(3) and 55 are excessively restrictive, rendering it nearly impossible for the extremely high threshold to be reached by conventional warfare. A potential justification for this high threshold is that States did not want to see typical battlefield damage covered.[93] However, it could be argued that not even the environmental damage of the Vietnam War would cross the threshold since nature has largely recovered, therefore failing the 'long-term' requirement. Finally, because of the provisions' lack of practicability given the high threshold and absence of concrete meaning, it must be asked whether these provisions have 'fallen into desuetude', losing their binding force as a result of non-use for a sufficiently long time.[94]

ENMOD

ENMOD also provides direct protections to the environment, albeit from a different angle. ENMOD regulates the use of environmental modification techniques as a means to cause harm to the enemy during armed conflict. In Article 1(1), ENMOD specifically prohibits 'environmental modification techniques having widespread, long-lasting or severe effects as a means of destruction'.[95]

Unlike Articles 35(3) and 55 of API, the requirements to constitute prohibited environmental modification are linked by 'or', which results in a much lower threshold than API's 'and'. Additionally, the travaux of the UN Committee of the Conference of Disarmament, which established ENMOD, provides a working definition of 'long-term' as 'lasting a period of months, or approximately a season'.[96] However, Article 1(1) is criticised as undercutting the ostensible purpose of ENMOD, namely, to prohibit the military or hostile use of ENMOD techniques.[97] Indeed, during its drafting, many diplomats and observers found the wording of Article 1(1) to be too ambiguous, leaving it unclear as to what exactly would be prohibited.[98] Others felt that Article 1(1) was entirely deceptive, given that the use of a threshold requirement might serve to legitimise ENMOD techniques so long as they do not cross the 'widespread, long-term, or severe effects' threshold.[99] Further, ENMOD is less practical than API in a case of armed conflict, given that it deals with the slightly sci-fi-like idea of 'environmental changes produced by deliberate manipulation of natural processes'.[100]

Unfortunately, ENMOD specifies the level of damage that is prohibited, whereas an outright ban on environmental modification, which has certain sinister apocalyptic overtones, would have sent a much stronger message to belligerent parties to an armed conflict.

Issues of Conflict Classification

IHL makes a distinction between the environmental protections during IACs, i.e., armed conflicts between two recognised States, and NIACs, which are intra-state conflicts between non-state armed groups and government forces. IACs benefit from a wide range of albeit inadequate protections, whereas the applicable rules regulating NIACs are limited and are not subject to the direct environmental protection provisions detailed in either API or ENMOD.

Today, the overwhelming majority of armed conflicts are internal.[101] This means that the vast body of IHL is inapplicable or much more

85 H McCoubrey, *Environmental Protection in Armed Conflict: Present Provision and Future Needs* (Manuscript, University of Nottingham, January 1994) 5-6.
86 UNEP (n 13) 4.
87 Thomas (n 14) 83.
88 Liesbeth Lijnzaad and Gerard J Tanja, 'Protection of the Environment in times of Armed Conflict: The Iraq-Kuwait War' (1993) 40 Netherlands Int'l L. Review 180.
89 ICRC, *Guidelines on the Protection of the Natural Environment in Armed Conflict* (2020).
90 ibid. rule 2.
91 ibid.
92 ICRC, 'Treaties, States Parties and Commentaries' <https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp_viewStates=XPages_NORMStatesParties&xp_treatySelected=470> accessed 3rd May 2021.
93 Karen Hulme, *War Torn Environment: Interpreting the Legal Threshold* (Martinus Nijhoff Publishers 2004) 79.
94 Bothe et al. (n 78) 576.
95 ENMOD (n 28) art 1(1).
96 UNCCD to the General Assembly, Official Records of the General Assembly, 31 Session, Supplement No. 27 (A/31/27).
97 Lawrence Juda, 'Negotiating a Treaty on Environmental Modification Warfare: The Convention on Environmental Warfare and its Impact Upon Arms Control Negotiations' (1978) 32 International Organisation 975, 980.
98 ibid.
99 ibid.
100 ENMOD (n 28) art 2.
101 Department of Peace and Conflict Research, 'Uppsala University Conflict Data Programme' (Uppsala University) <https://ucdp.uu.se> accessed 19 February 2021.

restrictive when applied to NIACs.[102] This is particularly problematic given that NIACs are closely connected to the environment, with recent studies showing that over the past 60 years, at least 40% of NIACs have been linked to natural resources and their exploitation.[103]

Protocol II to the Geneva Conventions (APII), which regulates the protection of victims of non-international conflicts, does not make any reference to the environment.[104] The environment only receives protection indirectly as a cultural object or object indispensable to the civilian population's survival, as well as where aspects of the environment hold dangerous forces such as dams.[105]

Despite this, the International Law Commission's Special Rapporteur has stated, 'it is clear that fundamental principles of distinction and the principle of humanity… reflect customary law and are applicable in NIACs'.[106] When an attack occurs against the environment in a NIAC that does not correctly balance these IHL principles, it is clear that such an attack is prohibited.[107] However, these customary principles offer minimal environmental protection during armed conflict and are often displaced by anthropocentric motives.

The ICRC Guidelines encourage States to apply the same degree of environmental protection to IACs and NIACs, encouraging each party to apply 'all or part' of IHL rules relating to the environment.[108] If this piece of guidance was widely disseminated and incorporated into State practice, it would be of great significance to the environment, given that 'legal explanations of the classification of a conflict do not alter the damage wrought by conflict on the natural environment'.[109]

II.II Indirect Protection

Indirect protection of the environment is provided by the general principles of IHL. The ICRC Guidelines state that the environment is generally recognised as a civilian in character.[110] This means that any part of the environment that is not a military objective is protected by the general principles of IHL that protect civilians and civilian objects and property, as well as those that limit the means and methods of armed conflict,[111] namely distinction, necessity and proportionality. These principles of customary international law[112] safeguard the environment in that they guard against wanton and excessive environmental damage in the absence of explicit provisions protecting it.[113]

102 UNEP (n 13) 10.
103 ibid.
104 Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts.
105 ibid. arts 14-16.
106 ILC, 'Second Report on the Protection of the Environment in Relation to Armed Conflicts' (28 May 2018) UN Doc A/CN.4/673.
107 Camilo Ramírez Gutiérrez and A Sebastian Saavedra Eslava, 'Protection of the Natural Environment under IHL and International Criminal Law: The Case of the Special Jurisdiction for Peace in Colombia' (2020) 25 UCLA J Int'l L Foreign Aff, 123, 137.
108 ICRC Guidelines (n 89) Recommendation 18.
109 ibid.
110 ICRC Guidelines (n 89) 46.
111 Michael Schmitt, 'War and the Environment: Fault Lines in the Perspective Landscape' (1999) 37 Völkerrechts Archives 32.
112 Henckaerts et al (n 16).
113 Michael Schmitt, 'Green War: An Assessment of the Environmental Laws of Armed Conflict' (1997) 22 Yale J Int'l L 56.

Distinction

Returning to API, Article 48 on Basic Rules codifies the principle of distinction, stating that parties to a conflict must distinguish between civilians and combatants and between civilian objects and military objects.[114] Indeed, precaution requires decision-makers to refrain from indiscriminate acts.[115] Article 52 defines civilian objects negatively as objects that are not military objectives, i.e. 'those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction… in the circumstances ruling at the time, offers a definite military advantage'.[116] To this extent, the restrictive conditions of Articles 35 and 55 do not apply to the principle of distinction.[117] While Article 52 does not explicitly refer to the environment, Schmitt argues that this definition is broad in scope, applying to 'all components of the environment – land, air, flora, fauna, atmosphere, high seas, etc. – that do not present an advantage… to a military operation'.[118]

However, the indirect protection of the environment as a civilian object is a precarious one since elements of the environment are all too likely to become military objects. For example, the trees that provided cover for the Viet Cong during the Vietnam War meant that their defoliation was a legitimate military objective.[119] This reasoning allowed for the mass use of herbicides on vast swathes of forest. Articles 35 and 55 API could restrain such environmental destruction; however, this brings us full circle to the triple cumulative threshold problem.

Necessity

Necessity dictates that a military commander is only permitted to use the degree of force required to accomplish a military objective. For example, Article 23(g) of the Hague Convention contains certain provisions with substantive (albeit peripheral) impact on military operations affecting the environment.[120] It states that it is forbidden to destroy or seize enemy property unless it is demanded by the necessities of war.[121]

Article 53 of the Fourth Geneva Convention echoes the above and protects property by reference to military necessity.[122] It states that any destruction of civilian property by an occupying power 'is prohibited, except where such destruction is rendered absolutely necessary by military operations'.[123] Accordingly, breaches of this Article constitute 'grave breaches'[124] whenever the damage is extensive, unjustified by military necessity, and carried out wantonly, thereby constituting a war crime under the Rome Statute.[125] There is support for the proposition that the burning of Kuwaiti oil wells during the Gulf War constituted a grave breach.[126]

114 API (n 28) art 48.
115 ibid. art 57.
116 ibid. art 52.
117 Bothe et al (n 78) 576.
118 Schmitt (n 111) 35.
119 ibid.
120 Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 18 October 1907, Article 23(g).
121 ibid.
122 Thomas (n 14) 92.
123 Convention (IV) Relative to the Protection of Civilian Persons in Time of War, Geneva, 12 August 1949, art 53.
124 ibid. art 147.
125 Rome Statute of the International Criminal Court 1998, art 8(2)(a)(iv).
126 Schmitt (n 87) 34.

However, due to the subjective nature of military necessity, almost any environmentally harmful action can be given an acceptable justification.[127] Schmitt articulates this problem well, stating, absent any explicit treaty law, 'is the law, therefore, nothing more than an articulation of that fighter pilot adage to 'trust your gut?' Or is it imbued with a meaning more distinct and developed, perhaps in the Martens Clause's dictates of public conscience'.[128] The Marten's Clause dictates that 'until a more complete code of the laws of war is issued… populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilised nations, from the laws of humanity and the requirements of the public conscience'".[129] However, as with many other core themes of IHL, there is no one accepted interpretation of the Marten's Clause.[130]

It is likely that neither 'trust your gut' nor the Martens Clause realistically articulates how these decisions are made; rather, it is doubtful whether the environment enters the field of thought at all (save in cases of the famously vulnerable ecosystems such as the Arctic). If the killing of hundreds of civilians is enough to justify attacking a target, then it is unlikely that the environment will be considered. After all, the very name 'International Humanitarian Law' emphasises its anthropocentric focus.

Proportionality

Positive identification of a military objective triggers proportionality in that a military commander must consider the principle of humanitarian concern ('the unwarranted destruction of life, land and property'[131]) and the doctrine of economy of forces ('the minimum force needed to accomplish the military objective'[132]) before acting to achieve the objective. The ICJ has held that 'States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate objectives'.[133] Further, the destruction of the environment, as an end in itself, without consideration for the closely linked principles of necessity and proportionality, is a violation of international law.[134]

Additionally, the International Criminal Tribunal for the Former Yugoslavia, in the *Tadić* case, found that violations of customary IHL could be considered war crimes, and by extension, therefore, violations of customary IHL relating to the protection of the environment could also be considered as such.[135] This highlights that when aspects of the environment as civilian objects become military objectives, the attack must be weighed against the effect it will have on the environment.[136]

Proportionality, like necessity, is 'subjective and value based', making it difficult to determine when a proportionate attack becomes disproportionate.[137] During armed conflict, determinations of proportionality are almost always self-serving. Indeed, where a military unit is at risk, a commander may use the prescriptive vagueness of proportionality to legitimise environmentally destructive actions. As Schmitt states, 'given the nature of war and human motivations, legitimate doubt will be resolved in favour of destroying the environment to further the mission'.[138] The hard truth is that the brutality of war does not naturally lend itself to mercy towards the environment.

This chapter has identified that IHL provisions on environmental protection are vague, ambiguous and abused to further anthropocentric motives and suggests that more must be done to secure the protection of the environment during armed conflict.

III. The Way Forward

IHL on the protection of the environment in relation to armed conflict contains a significant number of gaps and deficiencies, which continue to allow the environment to be unjustifiably damaged. This section shall look at two possible solutions to better protect the environment during armed conflict, namely the potential for a new treaty and the use of demilitarised zones.

New Treaty

Schmitt states that 'a convention on protecting the environment during armed conflict, assuming it was carefully drafted to avoid the pitfalls, would be responsive in placing Parties on notice of what is clearly expected of them', as well as providing an effective basis for enforcement.[139] This approach was first advocated in response to the Gulf War when IHL's environmental protections failed to regulate and prevent the environmental damage done by the Iraqi army. It was following this war that legal practitioners and environmentalists called for a fifth Geneva Convention to cater specifically for the protection of the environment during armed conflict.[140]

Bothe notes that a solution to the deficiencies of IHL could involve the codification of the provisions of environmental protection during armed conflict into a 'coherent and practical instrument that considers both IAC and NIAC'.[141] Indeed, a new treaty could model itself on the International Law Commission's ('ILC') *Draft Principles on the Protection of the Environment in Relation to Armed Conflicts*, which would infuse IHL protections with an ecocentric quality.[142] These principles, which are due to be adopted on second

127 Richard Falk, 'The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime' in Austin and Bruch (n 24) 144.
128 Schmitt (n 113) 56.
129 Vladimir Pustogarov, 'Fyodor Fyodorovich Martens (1845-1909) – A Humanist of Modern Times' (1996) 312 International Review of the Red Cross 300.
130 Rupert Ticehurst, 'The Martens Clause and the Laws of Armed Conflict' (1997) 317 International Review of the Red Cross <https://www.icrc.org/en/doc/resources/documents/article/other/57jnhy.htm> accessed 27 May 2021.
131 Christopher Joyner and James Kirkhope, 'The Persian Gulf War Oil Spill: Reassessing the Law of Environmental Protection and the Law of Armed Conflict' (1992) 24 Case Western J Int'l L, 61.
132 Annotated Supplement to the Commander's Handbook on the Law of Naval Operations, NWP 9 (REV.A)/FMFM 1-10 (1989) 6.
133 *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion* (1996) ICJ 679, 242.
134 *US v List* (1950) 11 TWC 759, 1253.
135 *Prosecutor v Tadić, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction* (International Criminal Tribunal for the Former Yugoslavia, 2 October 1995) Case No.IT-94-1-AR72, 70.
136 Louise Doswald-Beck, 'International humanitarian law and the Advisory Opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons' (1997) 316 Int'l Rev. Red Cross.
137 Michaela Halpern, 'Protecting Vulnerable Environments in Armed Conflict: Deficiencies in IHL' (2015) 51 Stan J Int'l L 119, 139.
138 Schmitt (n 111) 47.
139 Schmitt (n 113) 64.
140 Glen Plant, *Environmental Protection and the Law of War: A 'Fifth Geneva' Convention on the Protection of the Environment in Time of Armed Conflict* (Wiley-Blackwell 1991) 37.
141 UNEP (n 13) 28.
142 ILC, *Protection of the Environment in Relation to Armed Conflicts: Text and*

reading by the UNGA later this year, approach the problem of environmental damage during armed conflict holistically with their scope applying to the protection of the environment before, during and after an armed conflict.[143] This mature view acknowledges that environmental destruction is a barrier to long-lasting peace, as the 'destruction of the environment can remove natural resources which may have provided a potential platform for cooperation… [and] limit the possibility of enjoying natural features that cross-sectarian divides'.[144]

Today, Schmitt argues that although a new treaty would be the 'cleanest way to generate a fresh normative architecture… unfortunately, the time is not ripe for such an effort'.[145] This is especially true given that any effort to create binding law would likely fall victim to 'politicisation and infighting'. [146] Indeed, Szasz believes a new treaty would be useless, something that would result in an unhelpful agreement resembling the lowest common denominator due to the need to achieve consensus.[147] To avoid the stillbirth of a new treaty, it is first necessary to clarify the existing IHL provisions relating to environmental protections. If these provisions were to be clarified, with the help of the aforementioned ICRC Guidelines, and developed from an ecocentric viewpoint, a new legal instrument might not be necessary.[148]

Demilitarised and Protected Zones

One way to mitigate the effects and reach of wartime environmental damage is to put in place concrete demilitarised zones, which would allow safe spaces for nature and civilians alike. This would be less confusing and complex than having wordy legal provisions regulating belligerents' conduct. Further, discussions over clarifying or creating new laws are, arguably, too time-consuming when the environment is in urgent need of protection now.

The UNEP Report highlights the need to grant place-based protection to areas of ecological importance and critical natural resources due to the fact that IHL does not go far enough to place these areas under protection during armed conflict.[149] UNEP proposes that at the outset of any conflict, these aspects of the environment should be 'delineated and distinguished as demilitarised zones', whereby parties to an armed conflict would be prohibited from conducting military operations there.[150]

Indeed, there is evidence to show that demilitarised zones become havens for wildlife and ecological conservation. For example, wildlife is thriving in the demilitarised zone between North and South Korea, where endangered animals, such as the amur goral and Asiatic black bear, are making a comeback.[151] Even tigers, believed to be extinct along the peninsula, have been sighted.[152]

Demilitarised zones are already provided for by Article 15 of the Geneva Convention IV,[153] as well as Articles 59 and 60 of API,[154] which specify that demilitarised zones are to be agreed upon by parties to the conflict. Despite this, belligerent parties rarely (if ever) agree upon demilitarised zones in order to protect the natural environment.

Previous attempts at mandatorily establishing demilitarised zones through a new treaty had been advocated for by the IUCN.[155] However, the draft treaty failed since it did not have UNSC support due to the fact that States insist on their right to self-defence in every circumstance, no matter if demilitarised zones are compromised.[156] This was seen during the Bosnia-Herzegovina conflict, where the UNSC acknowledged the need to have designated 'safe zones' or demilitarised zones,[157] but the UN troops were unable (or unwilling) to enforce them with some of the worst atrocities taking place within them.[158]

Despite this, there is hope for the future. The ILC's Draft Principles, if adopted, would bolster environmental protection during armed conflict through demilitarised zones. Draft Principles 4 and 17 outline that States should designate areas of major environmental and cultural importance as protected zones protected against any attack, so long as they do not contain a military objective.[159] These principles are intended to apply to both IACs and NIACs, and make an interesting link between environmental and cultural importance, which highlights the significance of the environment for indigenous peoples, enabling a stronger case to be made for the cultural value of biodiversity.[160]

In addition, the relatively new realm of International Environmental Law ('IEL') may be of some assistance to States in identifying and establishing demilitarised zones. For instance, the World Heritage Convention ('WHC')[161] establishes 'area-based' protection for natural and cultural heritage sites of 'outstanding universal value' [162] by obligating states to protect them 'to the utmost of [their] own resources'.[163] For example, the WHC has played a significant role in protecting the DRC's Virunga National Park. Congolese State authorities and the UN, as well as other NGOs operating in the area, have created a coalition of forces to ensure that basic protection of the Park is maintained by international law, even during armed conflicts.[164]

Although it is uncertain whether the WHC applies during armed conflict, academics such as Hulme argue that it continues to apply, as the WHC seems to require its 'continuation in conflict of a 'protected area' regime alongside IHL rules'.[165] The WHC could

Titles of the Draft Principles Provisionally Adopted by the Draft Committee on First Reading (UNGA, 6 June 2019) A/CN.4/L.937.

143 ibid. Draft Principle 1.

144 Rachel Killean, 'From Ecocide to eco-sensitivity: 'Greening' reparations at the ICC' (2021) 25 Int'l J Human Rights 323, 326.

145 Schmitt (n 113) 64.

146 ibid. 66.

147 Paul Szasz, 'Comment: The Existing Legal Framework, Protecting the Environment During International Armed Conflict' 69 Int'l Law Studies 278.

148 Halpern (n 137) 146.

149 UNEP (n 13) 20.

150 ibid.

151 Iain Watson, 'Rethinking Peace Parks in Korea' (2014) 26 Peace Review 102.

152 ibid.

153 Convention (IV) (n 122) art 15.

154 API (n 28) arts 59 and 60.

155 Draft Convention on the Prohibition of Hostile Military Action in Protected Areas 1995.

156 Wolfgang Burhenne, 'The Prohibition of Hostile Military Action in Protected Areas' (1997) 27 Environmental Policy and Law 373.

157 UNSC Resolution 844 (June 18, 1993) UN Doc. S/Res/844.

158 Burhenne (n 156).

159 ILC (n 142) Draft Principles 4 and 17.

160 Stavros Pantazopoulos, 'Conflict and Conservation – The Promise and Perils of Protected Zones' (Conflict and Environment Observatory, 8th October 2020) <https://ceobs.org/conflicts-and-conservation-the-promise-and-perils-of-protected-zones/> accessed 30th March 2021.

161 The World Heritage Convention 1972.

162 ibid. art 11(2).

163 ibid. art 4.

164 Sjöstedt (n 64) 143.

165 Karen Hulme, 'Armed Conflict and Biodiversity' in Michael Bowman,

therefore complement the ILC's Draft Principles and 'set up systems of international cooperation and assistance to protect natural heritage areas' during armed conflicts,[166] and its clear and concrete obligations could provide real guidance to military commanders on the battlefield.[167]

However, there is a shortcoming with this approach. It is one thing for belligerent parties to agree to adhere to demilitarised zones during IACs; it is a different matter to secure such agreements from non-state armed groups during NIACs. This issue is sorely felt in other areas of IHL. Despite the increasing role of non-state armed groups in armed conflict, 'IHL remains state-centric and provides limited opportunities for armed groups to comply with its provisions or engage in its development'.[168]

Answering questions on how IHL could be developed to better protect the environment during armed conflict is not easy. However, hope may be garnered from the attempts of the ILC to seek more thorough, clear, and more easily enforceable protections for the environment, which apply to both IACs and NIACs.

Conclusion

This article has shown that armed conflict takes a significant toll on the environment and has demonstrated how environmental protection within IHL is inadequate in upholding minimum environmental safeguards during times of conflict. The failings of these provisions are compounded by the rapidly deteriorating climate crisis that is worsened by armed conflict; 12 out of the 20 countries most vulnerable to climate change are also sites of conflict.[169] Peter Maurer, President of the ICRC, states that all the present facts and statistics 'attest to the maelstrom of stress that the environment endures during armed conflict'.[170]

Although IHL provisions on the protection of the environment during armed conflict are flawed, 'the sky is not falling' - yet.[171] As we have seen, some have argued that the time is not right for a new treaty given the lack of political will, but that does not prevent other advances from being made. IHL provisions should be clarified with the help of the ICRC's Updated Guidelines and the ILC's Draft Principles. In addition, States should urgently be encouraged to identify and establish demilitarised zones in areas of environmental importance, as well as those containing natural resources.

These measures are essential if the international community is to ensure the future viability of the environment for generations to come. After all, if we continue to destroy the environment needlessly, whether it be in peacetime or wartime, 'we will not thrive or even survive'.[172]

Peter Davies, and Edward Goodwin (eds) *Research Handbook on Biodiversity and Law* (Elgar Publishing 2016) 245.

166 Pantozapoulos (n 160).

167 Alice Bunker, 'Protection of the Environment during Armed Conflict: One Gulf, Two Wars' (2004) 23 Review of Europeans Community and Int'l Environmental Law 201.

168 Orla Buckley, 'Unregulated Armed Conflict: Non-State Armed Groups, IHL, and Violence in Western Sahara' (2012) 37 North Carolina J Int'l L 793, 795.

169 ND-GAIN, 'Country Index' (July 2020, Uni of Notre Dame) <https://gain-new.crc.nd.edu/> accessed 26 February 2021.

170 ICRC (n 89) 4.

171 Schmitt (n 81) 65.

172 UNEP, 'Climate, Biodiversity Loss and Pollution: Alarming Report on Earth's Triple Environmental Emergencies' (YouTube, 18 February 2021) <https://www.youtube.com/watch?v=ISNu8W4xig8> accessed 10 April 2021.