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EDITED BY KAREN HULME

'This book is the perfect introduction and research tool for all of us that wish to understand the most pertinent issues relating to law of the environment and armed conflict. The compilation is skilfully composed by one of the absolute authorities in the field, Professor Karen Hulme. Through the selection of articles she takes the reader on a historic journey, unveiling the contemporary legal and political context, including the connection between international disarmament law and the law of armed conflict. The contributions discussing the example of the Iraq-Kuwait War – brings the reader into the modern discourse and it is skilfully complemented by contributions on the role of customary international law, gaps and possibilities in current law as well as responsibility for wartime environmental damage. In the last section of the book, Professor Hulme ties it all together by, once again, including contributions that are placed in a modern legal and political context – as well as a look into the future.'

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Karen Hulme is Professor of Law at the University of Essex, UK.

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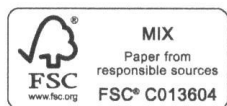
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Introduction

Karen Hulme

With the increasing intensity and frequency of the impacts of climate change and the continual loss of habitats and species, the global environment appears to be under constant assault and, as a consequence, becoming ever more fragile. It is all the more lamentable then that the environment continues to be harmed in warfare and, indeed, is itself often a contributing cause of conflict due to scarcity or depletion of natural resources. Today the damage caused to the environment during armed conflict is, generally, less direct and on a smaller scale than in previous times, and this reflects the changing global attitude to the importance of a healthy environment, as well as decades of work that has been undertaken by key states, civil society organizations, the International Committee of the Red Cross and academia. The current collection of articles pays tribute to those authors whose research has illuminated this issue over the years and nudged the law forward to help prevent further environmentally-damaging acts of war. The current collection, therefore, focuses on the law affording protection to the environment from the effects of armed conflict.

In compiling this collection of articles there were certain parameters of the series that must be met. Principally, the research selected must include the must-reads within the topic and must, generally speaking, be contained in journal articles. Thus, the many books that exist on the topic, could generally not be included here but their value to the field should not be underestimated.¹ In the compilation this author has tried to tell a story with the articles selected, of how the law has developed, as well as why, and which authors were pivotal in that development. The volume, by necessity, focuses on the legal developments and research in the field, but this study would not be complete without mentioning the non-legal scholars whose scientific work and tireless campaigning for improved environmental protection first sparked the debates – particularly in the 1970s following the environmental devastation caused in the Vietnam War. In the final Part in particular, this author has tried to showcase some younger writers, whose research directions evidence new thinking in the area and who represent the future generation of scholars who will build on the existing legal foundations to try to nudge the law forward even more.

This introductory chapter will attempt to walk the reader through the compilation Part by Part, pausing at times to highlight specific aspects of some of the authors' contributions while exploring the legal developments in the field. Following an exploration of some of the rationales for environmental protection in wartime (Part I) and some early directions (Part II), the book picks up the developments afoot in 1977 for the creation of the environmentally-specific provisions in Additional Protocol I² (Part III), and the law's first major test – the first Gulf Conflict of 1990–1991 (Part IV). A number of issues are then raised in Parts V–VIII, including the question of customary environmental wartime protection (Part V), gaps and opportunities in the law (Part VI), weapons (Part VII) and the issue of liability/responsibility (Part VIII). The final part is dedicated to future directions and possibilities for the law in this area (Part IX).

Part I: The Rationales for Protection of the Environment in Armed Conflict

Part I helps to set the scene for research in relation to the protection of the environment in armed conflict. It is impossible to select key writings in this field without mentioning the founding fathers whose voices first signalled the need to act in order to prevent environmental damage. Interestingly, these pivotal voices did not always belong to lawyers. Arthur H. Westing, for example, is an ecologist, Geoffrey Best a historian and Jozef Goldblat's expertise lies in economics, international relations and law. It was the early writings of these key figures which highlighted the ravages of the Vietnam War on the environment, including from the use of chemical defoliants, high explosive bombs (producing cratering), free-fire zones, carpet or saturation bombing, armoured tractors (Rome Plows) to clear thick forest, and incendiary weapons (napalm) – and helped to catapult the issue of wartime environmental damage to the foreground of the 1974–1977 Diplomatic Conference negotiating the text of the 1977 Additional Protocols to the Geneva Conventions.

As Best points out in 1987 (Chapter 3 this volume), damage to the natural environment had, up to that point, historically been caused by peacetime activities, not by warfare (pp. 17–18) – and actually today it is still generally true that normal peacetime activities (for example, development projects and industry) cause more damage than warfare. However, as Best describes, the technological developments of the twentieth century would see warfare cause an unprecedented amount of environmental damage. In addition to the destruction wrought by the use of the atomic bomb on Japan (see Margolis, Chapter 6 in Part II), the Vietnam War saw the US embroiled in guerrilla warfare where the forest environment played an intrinsic role, providing cover and concealment to guerrilla fighters, as well as an important source of food. Thus, to press for change, policy makers then, as now, needed the science to be able to substantiate their arguments. Westing (1978, Chapter 1 this volume) was a key ecologist of the time whose work explored the destructive effects of US weapons and tactics on the Vietnamese environment, opining that such environmental damage would have long-lasting impacts due to 'serious ecological implications' (p. 3). Interestingly, Westing refers to concepts of biodiversity loss, in particular of the loss of biodiversity-rich vegetation in the cratering caused by saturation bombing and the productivity impoverishment as lower-diversity grasses take root (p. 7) – note that this recognition was long before such concepts would be globally adopted in the 1990s.

Westing went on to work at the Stockholm International Peace Research Institute producing several studies on the topic of the environmental destruction caused in the Vietnam War, which provide key reference points for the dawn of the ecological warfare era in the late 1960s and early 1970s. The 1960s/1970s were a turning point in environmental awareness, with global outrage at the US military destruction witnessed in the Vietnam War leading to the beginning of a revolution in environmental thinking. Vietnam provided a novel situation and a worrying new trend in warfare, and little was known on the longer-term impacts of such tactics. Thus, using his analysis of the ecological impacts on societies caused by the Second World War, Lumsden (1975, Chapter 2 this volume) provided a theory on the scale of damage facing the South Vietnamese population. Lumsden's use of the notion of 'ecological harm' is noticeably broad, including the birth-rate of the population as well as agricultural impacts, malnutrition and urbanization. He suggests that in countries subject to large-scale land warfare 'agricultural production in poor countries appears to require much more time for recovery

than industrial production' (p. 13). Today we would call this notion 'resilience' – that is, Lumsden signals how warfare can have different impacts on communities depending on their ability to adapt to changed circumstances and the elasticity of available resources. He describes how the countryside is devastated, with millions of landmines scattered all over and low-diversity craters forming over vast landscapes, and those fleeing the countryside to urban areas find that those urban areas are unable to cope with the swelling numbers. Thus, in such societies, he suggests, 'destruction of key elements in the delicate ecological balance may threaten the survival of the population' (p. 15) – highlighting the reverberating impacts of environmental damage on the population. In his conclusion published in 1975, Lumsden makes some inspired thoughts on future warfare, which are worth quoting in full:

There can be little doubt that future large-scale wars in the third world would exacerbate all the major problems already present in these areas: malnutrition, disease, rapid urbanization, unemployment, inflation, and lack of investment. Further, since those countries depend almost entirely on imports to fight major wars, military investments with which to conduct such wars do little to increase the economic base required to support their populations; indeed, they will result in increased debts to the arms suppliers and in the squandering of precious national resources. (Lumsden, 1975, p. 228)

While Westing and Lumsden provided the scientific knowledge-base, Schafer, Best and Drucker wrote in the late 1980s on the ethical implications of environmental damage in armed conflict. Environmental law and awareness had only fully started to emerge in the 1970s and struggled with its own rationale – was environmental protection for the benefit of people or the environment itself? And, so, naturally the same questions plagued the concept of environmental protection included in the laws of armed conflict. Drucker's focus (1989, Chapter 4 this volume) is on this debate, notably the utilitarian value of the environment as a 'good' useable by people, versus value for itself (often referred to as intrinsic or inherent). He even recognizes a peacetime obligation on the commander to site and operate bases in an environmentally-safe way, as well as to train soldiers to protect the environment, and, more controversially, that the military commander should take some risks with their soldiers' lives to protect the environment. Schafer's work, on the other hand, is on the relationship between the peacetime law of environmental protection and the law of armed conflict. He recognizes that these two legal regimes have a common nexus in that both are based on a common value system (p. 45) and that at the core of both legal regimes is the intention of a conservation of resources.³ The law of armed conflict, he suggests, clearly borrows from peacetime environmental laws (Schafer, 1989, Chapter 5 this volume, p. 71), and, furthermore, that such:

Awareness of peacetime environmental protections can 'sensitize military leaders to the assimilative capacity and recuperative ability of the environment' within which they are fighting. By learning something about the science of environmental protection, they will be in a better position to form the honest judgment necessary to utilize the military necessity defense if their judgment is ever second-guessed. (Schafer, 1989, p. 321)

In the article selected by Best (1987, Chapter 3 this volume) he focuses more broadly on the historical evolution of cultural norms relating to war and the environment, but more specifically on the under-researched notion of religion and its influence in protecting the environment in

wartime. This issue is a particularly interesting one at present due to the culturally destructive tactics of the so-called Islamic State (IS) in Syria preaching a fundamentalist agenda, and that armed group's use of water resources, such as dams, as a strategic 'weapon' in the conflict – going so far as to poison lakes and river water with crude oil.⁴

Part II: Early Directions

In this part several early directions are discussed by authors writing from a legal perspective on the protection of the environment. While, historically, the environment has received much ancillary protection from legal provisions, the primary objective of which is to humanize warfare for the benefit of people,⁵ the post-war era was really the first time that states discussed the need for specific IHL provisions to protect the environment. While the principle of limited warfare has long been recognized, namely that 'war *cannot* be fought with any and every means available',⁶ the Second World War brought a terrifying new weapon that would irreversibly change the face of warfare and international relations. While biological and chemical weapons had existed in many low-tech forms for centuries, the new weapon of mass destruction, namely nuclear weapons, was hi-tech as well as being extremely destructive in its capability to wipe out entire cities. As the true extent of the environmental effects from the attacks at Nagasaki and Hiroshima began to emerge in the 1950s, thermo-nuclear testing began to attract widespread criticism and, hence, legal and political examination.⁷ Margolis' article in 1955 (Chapter 6 this volume) on this issue does not provide an examination from the perspective of the laws of war, but, arguably more interestingly, from the perspective of peacetime laws governing maritime relations at sea, such as the law of the sea and pollution laws. This article is valuable in providing the broader, legal perspective, therefore, that weapons testing – a key issue to develop weapons and to test for their compatibility with the laws of war, has to comply with other rules of international law. In the same way authors today have analysed broader environmental law instruments to test the legality of wartime actions – and so this approach was quite novel in the 1950s when the law available to Margolis would have been relatively scant. The scale of the dangers of nuclear testing is observed by Margolis, in the huge 400,000 square mile danger area established around Bikini and Eniwetok Atolls (p. 90), which formed part of the Trust Territories administered by the US. The article highlights the impact on fishing resources in the region, as well as the long-term health impacts in people, and examines the nuclear tests in the light of the Grotian concept of the freedom of the high seas, and the core principle of international pollution law, drawn from the Trail Smelter Arbitration, that still forms the central pillar that prohibits transboundary environmental damage today.

In the 1960s/1970s there were a number of environmental assaults occurring in the Vietnam War, as previously outlined by Westing, and while Falk analyses the emerging notion of ecocide (including the tactic of weather modification, 1973, Chapter 7 this volume), Goldblat's article (1977, Chapter 8 this volume) specifically addresses the completely new departure in environmental warfare, namely the ENMOD (or environmental modification) Convention⁸ prohibiting the use or manipulation of the forces of the environment as 'weapons'. Falk references the uneasy coincidence between the developments in peacetime environmental awareness with the advent of the 1972 Stockholm Conference and the deliberate environmental

destruction tactics of the Vietnam War. He suggests that 'It may be more than coincidental that at the historical moment when we are in the process of discovering the extent to which man's *normal* activities are destroying the ecological basis of life on the planet that we should also be confronted by this extraordinary enterprise in Indochina of deliberate environmental destruction' (emphasis added, p. 107). He focuses on what he calls 'the persistent patterns of warfare that produce cumulative effects on ecosystems that can be properly called 'ecocide' or policies that can be designated as 'ecocidal'. While he analyses the effects and legality of US use of Rome Plows, defoliants, daisy cutters and heavy artillery, his central concern is the need for new legal rules explicitly to protect the environment, including the creation of a new crime of ecocide. Ecocide was indeed prohibited in a number of states, particularly in the domestic law of Russia, Vietnam and other Asian states, but no real headway was made with the suggestion of an international treaty. Recent attempts have been made, however, to reinvent the notion of ecocide, not to cover wartime destruction specifically, but in an attempt to address large-scale ecological destruction particularly caused by unconventional means of energy exploitation, such as the ecological devastation inflicted in exploiting the oil from tar sands in Canada.⁹ Looking back on Falk's Draft Protocol on Environmental Warfare it is an interesting read, especially knowing what we know now about the environmental provisions that would be adopted in the 1977 Additional Protocol I. The Draft Protocol was probably too specific in addressing the harmful tactics in the Vietnam War, but Falk's work was certainly very influential at the time in setting out the key legal issues.

Of the ENMOD Convention Goldblat notes that the drafters of the Convention highlight the most fanciful of possible activities, rather than focusing on potential modifications caused by more likely causes. Consequently, the Convention was written-off by many as alluding only to science-fiction scenarios, such as weaponizing the creation of earthquakes, tsunamis, an upset in the ecological balance of a region, changes in weather patterns and climate patterns, changes in ocean currents, changes in the state of the ozone layer, and changes in the state of the ionosphere (p. 124). In addition, he suggests that attempts to widen the 'illustrative' list (by including more common occurrences, such as, an upset in the hydrological balance of a region through the diversion of rivers) failed (p. 124), as did attempts to reduce the scale of harm to include small-scale precipitation enhancements, which he views as being the most likely scenario to occur in military operations.

Blix (1984, Chapter 9 this volume) in his opening paragraph delivers a clear reflection on man's ability to destroy during armed conflict what nature has grown and man has built – possibly over centuries in peacetime (p. 129). Recent conflicts, of course, demonstrate a worrying, increasing trend to destroy cultural heritage.¹⁰ For Blix the subject was the environmental destruction caused by new weapons, and he references Westing as being 'one of the clearest, most insistent and most tireless voices' on the issue (p. 129). Blix analyses the environmentally protective value of the growing range of arms control treaties, including the 1959 Antarctic Treaty, 1967 Outer Space Treaty, the 1963 Partial Test Ban Treaty, and the new developments in the prohibition of chemical and biological weapons (including the confirmation by the General Assembly that the existing prohibitions apply to herbicides), before focusing on the provisions in API, ENMOD and the new 1980 Convention on Conventional Weapons.¹¹ Of the last-mentioned Convention, Blix recognizes the deficiencies in the lack of attention to the environmental and human problems caused by remnants of war (p. 140). Interestingly, the issue of remnants is an important one that is returned to by authors

again and again, including in the context of landmines, cluster munitions, depleted uranium munitions, as well as other unexploded ordnance and toxic remnants of war.¹²

Part III: The Advent of Additional Protocol I

Discussion of Additional Protocol I is placed in a separate part because it forms the cornerstone of the protections afforded to the environment, both directly and indirectly. Protocol I was clearly designed to remedy the shortcomings of IHL in light of the devastating tactics and weapons used in the Vietnam War, and to some extent the Korean War, as well as to respond to the new wave of colonial conflicts. The Commentary provided by Bothe, Partsch and Solf (2013, Chapters 11 and 12 this volume) is very thorough and was based on their experiences at the negotiations. The Commentary still serves today as a crucial research tool for authors writing in this area. As regards the Protocol, ultimately, because it was covering so many new issues it struggled to gain universal acceptance. The US, in particular, led the criticism of the new Protocol, and never ratified it. One of the criticisms advanced by the US was the vagueness, as they saw it, of the environmental provisions, particularly the three-fold threshold of harm (notably the need for 'widespread, long-term and severe' environmental damage in Articles 35(3) and 55 of API). But the main criticisms levelled at the Protocol by the US were, as Aldrich comments (1986, Chapter 10 this volume), reserved for the new definition of combatants under Article 43, the inclusion of a prohibition on a host of reprisal actions and the inclusion of wars of national liberation within the definition of international armed conflict – meaning that insurgent fighters could claim prisoner of war status. Aldrich's article forms part of an Agora published in the *American Journal of International Law*, and is a response to the criticisms of API advanced by Major Guy B. Roberts during that meeting and elsewhere. Aldrich, who served as the Chairman of the US delegation to the Geneva Conference which adopted the Protocols, says that he considered the Protocol a major accomplishment (p. 147).

Two separate but similar provisions were adopted in Protocol I for the protection of the environment in international armed conflict (Articles 35(3) and 55). No such provision was adopted for Protocol II, albeit one was certainly suggested.¹³ As a result, there are no specific provisions within Protocol II requiring environmental protection within a situation of non-international armed conflict.

Within Protocol I, the limits of environmental damage in armed conflict can be found in Article 35(3) governing Means and Methods of warfare, and in Article 55 concerning Civilian Protections. The two provisions read as follows:

Article 35(3) – Basic Rules

It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

Article 55 – Protection of the Natural Environment

1. 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.