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

ADVANCE COPY

REFERENCE

ICRC

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Foreword

When the ICRC released the first version of these Guidelines in 1994 following a request from the United Nations General Assembly, the international community was reeling from the environmental devastation caused by the Gulf War. Almost 30 years later, I continue to visit communities and speak with people whose lives have been derailed by conflict-related environmental damage. Today, their hardships are compounded by the rapidly intensifying climate crisis.

In Iraq and Yemen, we see water insecurity threaten public health and jeopardize food and economic security. In Mali and Niger, we have seen how scarcity of resources, combined with limited mechanisms to ensure sustainable and equitable resource sharing, can exacerbate violence. In fact, according to a 2009 report by the United Nations Environment Programme on the role of natural resources and the environment in conflict and peacebuilding, at least 40 per cent of internal armed conflicts in the last 60 years have been related to natural resources. Most major armed conflicts between 1950 and 2000 took place in biodiversity hotspots, putting delicate ecological balances at risk. Countries experiencing conflict are also on the front line of climate change: 12 of the 20 countries which, according to the ND-GAIN Country Index, are the most vulnerable to climate change are also sites of armed conflict.

The facts attest to the maelstrom of stress that the environment endures in armed conflict. Over the years, I have seen how prospects are diminishing for the people who depend on it for their survival. The combined impacts of conflict, environmental degradation and climate risks have added new urgency to our work to protect the environment in armed conflict.

This year, the ICRC is releasing two complementary publications urging action. The present *Guidelines on the Protection of the Natural Environment in Armed Conflict* aims to contribute in a practical way to promoting respect for and protection of this precious asset even – or especially – during armed conflict. We have also published a policy report, *When Rain Turns to Dust*, which explores the grave humanitarian consequences that arise when the climate crisis, environmental degradation and armed conflict converge.

These Guidelines are the updated iteration of their 1994 predecessor. They reflect the developments in international law that have taken place since then, and we have added a concise commentary to each rule and recommendation to aid interpretation. The Guidelines are a tool to facilitate the adoption of concrete implementation measures to strengthen the protection of the environment in armed conflict. The adoption of such measures at the national level is essential to ensure that the law is put into practice. While a certain amount of environmental damage may be inherent to war, it cannot be unlimited, and it is now up to governments and all parties to armed conflict to take action accordingly.

The international community came together after the Vietnam War to enhance protection of the environment during armed conflict. It did so again after the Gulf War. As global momentum swells to mitigate the effects of climate change, States must once again unite against this existential threat to all humankind. As part of these efforts, we ask you to incorporate these Guidelines into your military manuals and national policy and legal frameworks. The ICRC stands ready to work with States and parties to armed conflict in achieving these goals. The environment can no longer remain a silent casualty of war.

Peter Maurer
President of the International Committee of the Red Cross

Acknowledgements

The updated *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* would not have been possible without the involvement of numerous persons, and the ICRC expresses its gratitude to all of them.

ICRC project team

The Guidelines were co-authored by Vanessa Murphy, Helen Obregón Gieseken and Laurent Gisel, legal advisers in the ICRC Legal Division. Vanessa Murphy and Helen Obregón Gieseken organized and coordinated the research, drafting and review of this Commentary throughout the various stages of consultation.

Peer-review group

The Guidelines have undergone a process of external peer review by practitioners and academics, who contributed input in their personal capacity. We would like to express our gratitude for their expertise, knowledge and contributions, which were essential to the drafting process. Peer reviewers are listed in an annex.

ICRC staff

In addition to the ICRC staff mentioned above, numerous additional ICRC staff members provided invaluable feedback, advice and support.

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English-language editor

Christina Grisewood undertook the significant task of editing the Guidelines.

Abbreviations

AJEPP	Allied Joint Environmental Protection Publication
CCW	Convention on Certain Conventional Weapons
CDDH	Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, 1974–1977
EIA	environmental impact assessment
ENMOD Convention	Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques
ERW	explosive remnants of war
EU	European Union
ICC	International Criminal Court
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
ICTY	International Criminal Tribunal for the former Yugoslavia
IHL	international humanitarian law
ILA	International Law Association
ILC	International Law Commission
IIHL	Institute of International Humanitarian Law (San Remo)
IUCN	International Union for Conservation of Nature
MARPOL	International Convention for the Prevention of Pollution from Ships
NATO	North Atlantic Treaty Organization
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
OILPOL	International Convention for the Prevention of Pollution of the Sea by Oil
STANAG	Standardization Agreement (NATO)
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UMAS	United Nations Mine Action Service
US	United States
WHO	World Health Organization

Summary of rules and recommendations

PART I: SPECIFIC PROTECTION OF THE NATURAL ENVIRONMENT UNDER INTERNATIONAL HUMANITARIAN LAW

Rule 1 – Due regard for the natural environment in military operations. Methods and means of warfare must be employed with due regard to the protection and preservation of the natural environment.

Rule 2 – Prohibition of widespread, long-term and severe damage to the natural environment. The use of methods or means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment is prohibited.

Rule 3 – Prohibition of using the destruction of the natural environment as a weapon.

A. Destruction of the natural environment may not be used as a weapon.

B. For States party to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD Convention), the military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party is prohibited.

Rule 4 – Prohibition of attacking the natural environment by way of reprisal.

A. For States party to Protocol I additional to the Geneva Conventions (Additional Protocol I):
   - **i.** Attacks against the natural environment by way of reprisal are prohibited.
   - **ii.** Reprisals against objects protected under the Protocol are prohibited, including when such objects are part of the natural environment.

B. For all States, reprisals against objects protected under the Geneva Conventions or the Hague Convention for the Protection of Cultural Property are prohibited, including when such objects are part of the natural environment.

PART II: GENERAL PROTECTION OF THE NATURAL ENVIRONMENT UNDER INTERNATIONAL HUMANITARIAN LAW

Rule 5 – Principle of distinction between civilian objects and military objectives. No part of the natural environment may be attacked, unless it is a military objective.

Rule 6 – Prohibition of indiscriminate attacks. Indiscriminate attacks are prohibited. Indiscriminate attacks are those:

A. which are not directed at a specific military objective;

B. which employ a method or means of combat which cannot be directed at a specific military objective; or

C. which employ a method or means of combat the effects of which cannot be limited as required by international humanitarian law;

and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects, including the natural environment, without distinction.

Rule 7 – Proportionality in attack. 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.

Rule 8 – Precautions. In the conduct of military operations, constant care must be taken to spare the civilian population, civilians and civilian objects, including the natural environment. All feasible precautions must be taken to avoid, and in any event to minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects, including the natural environment.

Rule 9 – Passive precautions. Parties to the conflict must take all feasible precautions to protect civilian objects under their control, including the natural environment, against the effects of attacks.

Rule 10 – Prohibitions regarding objects indispensable to the survival of the civilian population. Attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population is prohibited, including when such objects are part of the natural environment.

Rule 11 – Prohibitions regarding works and installations containing dangerous forces.

A. Particular care must be taken if works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, and other installations located at or in their vicinity are attacked, in order to avoid the release of dangerous forces and consequent severe losses among the civilian population.

B. **i.** For States party to Additional Protocol I, works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, may not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population, subject to the exceptions specified in Article 56(2) of the Protocol. Other military objectives located at or in the vicinity of these works or installations may not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.

ii. For States party to Protocol II additional to the Geneva Conventions (Additional Protocol II) and non-state actors that are party to armed conflicts to which the Protocol applies, works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, may not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.

Rule 12 – Prohibitions regarding cultural property.

A. Property of great importance to the cultural heritage of every people, including such property which constitutes part of the natural environment, must not be made the object of attack or used for purposes which are likely to expose it to destruction or damage, unless imperatively required by military necessity. Any form of theft, pillage or misappropriation of, and any acts of vandalism directed against, such property is prohibited.

B. For States party to Additional Protocols I and II, as well as for non-state actors that are party to non-international armed conflicts to which Additional Protocol II applies, directing acts of hostility against historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples, including when these are part of the natural environment, or using them in support of the military effort, is prohibited.

Rule 13 – Prohibition of the destruction of the natural environment not justified by imperative military necessity. The destruction of any part of the natural environment is prohibited, unless required by imperative military necessity.

Rule 14 – Prohibition of pillage. Pillage is prohibited, including pillage of property constituting part of the natural environment.

Rule 15 – Rules concerning private and public property, including the natural environment, in case of occupation. In occupied territory:

A. movable public property, including objects forming part of the natural environment, that can be used for military operations may be confiscated;

B. immovable public property, including objects forming part of the natural environment, must be administered according to the rule of usufruct; and

C. private property, including objects forming part of the natural environment, must be respected and may not be confiscated;

except where destruction or seizure of such property is required by imperative military necessity.

Rule 16 – The Martens Clause with respect to the protection of the natural environment. In cases not covered by international agreements, the natural environment remains under the protection and authority of the principles of international law derived from established custom, the principles of humanity and the dictates of public conscience.

Recommendation 17 – Conclusion of agreements to provide additional protection to the natural environment. Parties to a conflict should endeavour to conclude agreements providing additional protection to the natural environment in situations of armed conflict.

Recommendation 18 – Application to non-international armed conflicts of international humanitarian law rules protecting the natural environment in international armed conflicts. If not already under the obligation to do so under existing rules of international humanitarian law, each party to a non-international armed conflict is encouraged to apply to that conflict all or part of the international humanitarian law rules protecting the natural environment in international armed conflicts.

PART III: PROTECTION OF THE NATURAL ENVIRONMENT AFFORDED BY RULES ON SPECIFIC WEAPONS

Rule 19 – Prohibition of using poison or poisoned weapons. The use of poison or poisoned weapons is prohibited.

Rule 20 – Prohibition of using biological weapons. The use of biological weapons is prohibited.

Rule 21 – Prohibition of using chemical weapons. The use of chemical weapons is prohibited.

Rule 22 – Prohibition of using herbicides as a method of warfare. The use of herbicides as a method of warfare is prohibited if they:

A. are of a nature to be prohibited chemical weapons;

B. are of a nature to be prohibited biological weapons;

C. are aimed at vegetation that is not a military objective;

D. would cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which may be expected to be excessive in relation to the concrete and direct military advantage anticipated; or

E. would cause widespread, long-term and severe damage to the natural environment.

Rule 23 – Incendiary weapons.

A. If incendiary weapons are used, particular care must be taken to avoid, and in any event to minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects, including the natural environment.

B. For States party to Protocol III to the Convention on Certain Conventional Weapons, it is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons, except when these are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

Rule 24 – Landmines.

A. For parties to a conflict, the minimum customary rules specific to landmines are:

- **i.** When landmines are used, particular care must be taken to minimize their indiscriminate effects, including those on the natural environment.
- **ii.** A party to the conflict using landmines must record their placement, as far as possible.
- **iii.** At the end of active hostilities, a party to the conflict which has used landmines must remove or otherwise render them harmless to civilians, or facilitate their removal.

B. For a State party to the Anti-Personnel Mine Ban Convention:

- **i.** The use of anti-personnel mines is prohibited.
- **ii.** Each State Party must destroy or ensure destruction of its anti-personnel mine stockpiles.
- **iii.** As soon as possible, each State Party must clear areas under its jurisdiction or control that are contaminated with anti-personnel mines.

C. For a State not party to the Anti-Personnel Mine Ban Convention, but party to Protocol II to the Convention on Certain Conventional Weapons as amended on 3 May 1996 (Amended Protocol II to the CCW), the use of anti-personnel and anti-vehicle mines is restricted by the general and specific rules under the Protocol, including those requiring that:

- **i.** All information on the placement of mines, on the laying of minefields and on mined areas must be recorded, retained and made available after the cessation of active hostilities, notably for clearance purposes.
- **ii.** Without delay after the cessation of active hostilities, all mined areas and minefields must be cleared, removed, destroyed or maintained in accordance with the requirements of Amended Protocol II to the CCW.

Rule 25 – Minimizing the impact of explosive remnants of war, including unexploded cluster munitions.

A. Each State party to Protocol V to the Convention on Certain Conventional Weapons and parties to an armed conflict must:

- **i.** to the maximum extent possible and as far as practicable, record and retain information on the use or abandonment of explosive ordnance;
- **ii.** when it has used or abandoned explosive ordnance which may have become explosive remnants of war, without delay after the cessation of active hostilities and as far as practicable, subject to its legitimate security interests, make available such information in accordance with Article 4(2) of the Protocol;
- **iii.** after the cessation of active hostilities and as soon as feasible, mark and clear, remove or destroy explosive remnants of war in affected territories under its control.

B. Each State party to the Convention on Cluster Munitions undertakes:

i. never under any circumstances to use cluster munitions;

ii. to destroy all cluster munitions in its stockpiles and to ensure that destruction methods comply with applicable international standards for protecting public health and the environment;

iii. as soon as possible, to clear and destroy, or ensure the clearance and destruction of, cluster munition remnants located in cluster munition contaminated areas under its jurisdiction or control.

PART IV: RESPECT FOR, IMPLEMENTATION AND DISSEMINATION OF INTERNATIONAL HUMANITARIAN LAW RULES PROTECTING THE NATURAL ENVIRONMENT

Rule 26 – Obligation to respect and ensure respect for international humanitarian law, including the rules protecting the natural environment.

A. Each party to the conflict must respect and ensure respect for international humanitarian law, including the rules protecting the natural environment, by its armed forces and other persons or groups acting in fact on its instructions or under its direction or control.

B. States may not encourage violations of international humanitarian law, including of the rules protecting the natural environment, by parties to an armed conflict. They must exert their influence, to the degree possible, to stop violations of international humanitarian law.

Rule 27 – National implementation of international humanitarian law rules protecting the natural environment.

States must act in accordance with their obligations to adopt domestic legislation and other measures at the national level to ensure that international humanitarian law rules protecting the natural environment in armed conflict are put into practice.

Rule 28 – Repression of war crimes that concern the natural environment.

A. States must investigate war crimes, including those that concern the natural environment, allegedly committed by their nationals or armed forces, or on their territory, and, if appropriate, prosecute the suspects. They must also investigate other war crimes over which they have jurisdiction, including those that concern the natural environment, and, if appropriate, prosecute the suspects.

B. Commanders and other superiors are criminally responsible for war crimes, including those that concern the natural environment, committed by their subordinates if they knew, or had reason to know, that the subordinates were about to commit or were committing such crimes and did not take all necessary and reasonable measures in their power to prevent their commission, or if such crimes had been committed, to punish the persons responsible.

C. Individuals are criminally responsible for war crimes they commit, including those that concern the natural environment.

Rule 29 – Instruction in international humanitarian law within armed forces, including in the rules protecting the natural environment.

States and parties to the conflict must provide instruction in international humanitarian law, including in the rules protecting the natural environment, to their armed forces.

Rule 30 – Dissemination of international humanitarian law, including of the rules protecting the natural environment, to the civilian population.

States must encourage the teaching of international humanitarian law, including of the rules protecting the natural environment, to the civilian population.

Rule 31 – Legal advice to the armed forces on international humanitarian law, including on the rules protecting the natural environment.

Each State must make legal advisers available, when necessary, to advise military commanders at the appropriate level on the application of international humanitarian law, including of the rules protecting the natural environment.

Rule 32 – Evaluation of whether new weapons, means or methods of warfare would be prohibited by international humanitarian law, including by the rules protecting the natural environment.

In the study, development, acquisition or adoption of a new weapon, means or method of warfare, States party to Additional Protocol I are under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by applicable rules of international law, including those protecting the natural environment.

Introduction

1. Armed conflicts continue to cause environmental degradation and destruction, affecting the well-being, health and survival of people across the globe.[1] The consequences of this damage persist for years or decades after wars end, leaving indelible impacts on the lives of local populations.[2]

2. Too often, the natural environment is directly attacked or suffers incidental damage as a result of the use of certain methods or means of warfare. It is also impacted by damage or destruction of the built environment, for example when hostilities disrupt water, sanitation or electricity services or impair the infrastructure that enables them to operate. The environmental consequences are manifold. Attacks may lead to contamination of water, soil and land and release pollutants into the air. Explosive remnants of war contaminate soil and water sources and harm wildlife. Biodiversity is irreparably degraded as warfare is waged in hotspots.[3] In certain circumstances, the environmental consequences of armed conflict can also contribute to climate change. For example, the destruction of large areas of forest or damage to oil installations or big industrial facilities can have a detrimental climate impact, including through the release of large volumes of greenhouse gases into the atmosphere.

3. The indirect effects of conflict, such as the collapse of governance and the deterioration of infrastructure service systems, cause further environmental degradation. This is the case particularly when the conflict is protracted. Population displacement may result in the unsustainable exploitation of certain areas, putting the environment under even greater stress. Illicit and harmful exploitation of natural resources to sustain war economies, or for personal gain, contributes to lasting environmental damage in many contemporary conflicts.[4] A concurrent reduction in institutional capacity for environmental management further compounds these impacts and hinders recovery long after a conflict has ended.

International law and the protection of the natural environment in armed conflict

4. The damage wrought by armed conflict on the natural environment has been a source of deep concern for the international community for decades.[5] In manifestation of this concern, States have continued to develop bodies of international law, including international humanitarian law (IHL), international environmental law, international human rights law, international criminal law and the law of the sea to bolster protection of the natural environment. The international effort to better protect the natural environment in armed conflict first gained traction in the 1970s, when the severe damage caused by the extensive use of herbicides such as Agent Orange during the Vietnam War triggered an international outcry and underlined the need for improved and specific protection of the natural environment in such circumstances. This prompted the adoption in 1976 of the Convention on the Prohibition of Military or Any Other Use of Environmental Modification Techniques (ENMOD Convention). In addition, the issue was taken up by the 1974–1977 Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law, and ultimately two provisions that provide direct and express protection of the natural environment (Articles 35(3) and 55) were included in Protocol I of 8 June 1977 additional to the Geneva Conventions (Additional Protocol I).

[1] On the types of direct and indirect damage caused to the natural environment by armed conflict, see the post-conflict environmental assessments produced by the United Nations Environment Programme (UNEP) in contexts such as Afghanistan, Côte d'Ivoire, Sudan and the Gaza Strip.

[2] Regarding the impact of environmental damage on civilians in armed conflict, see UN Security Council, *Protection of civilians in armed conflict: Report of the Secretary-General*, UN Doc. S/2020/366, 6 May 2020, p. 11; and ICRC, *When Rain Turns to Dust: Understanding and Responding to the Combined Impact of Armed Conflicts and the Climate and Environment Crisis on People's Lives*, ICRC, Geneva, 2020.

[3] See T. Hanson *et al.*, "Warfare in biodiversity hotspots", *Conservation Biology*, Vol. 23, No. 3, June 2009, pp. 578–587.

[4] See C. Bruch, C. Muffett and S.S. Nichols (eds), *Governance, Natural Resources, and Post-Conflict Peacebuilding*, Routledge, Oxon, 2016. See also UNEP, *Environmental Rule of Law: First Global Report*, UNEP, Nairobi, 2019, pp. 19 and 231–232.

[5] For expressions of this concern, see UN Environment Assembly, Res. 3/1, Pollution mitigation and control in areas affected by armed conflict or terrorism, 6 December 2017, Preamble; UN Environment Assembly, Res. 2/15, Protection of the environment in areas affected by armed conflict, 27 May 2016, Preamble; UN General Assembly, Res. 47/37, Protection of the environment in times of armed conflict, 25 November 1992, Preamble; UN General Assembly, *Report of the United Nations Conference on Environment and Development*, Rio de Janeiro, 3–14 June 1992, Annex I: Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Principle 24 (reaffirmed at the United Nations Conference on Sustainable Development, Rio+20, Rio de Janeiro, 2012); UN General Assembly, Res. 37/7, World Charter for Nature, 28 October 1982, para. 5; and Declaration of the United Nations Conference on the Human Environment, Principle 26, reprinted in United Nations, *Report of the United Nations Conference on the Human Environment*, Stockholm, 5–16 June 1972, UN Doc. A/CONF.48/14/Rev.1, UN, New York, 1973, p. 5.

5. The bombing of oil installations during the 1980–1988 Iraq-Iran War and the burning of Kuwaiti oil wells during the 1990–1991 Gulf War reignited international interest in reaffirming and clarifying the law protecting the natural environment in armed conflict. Supported by a resolution of the United Nations (UN) General Assembly[6] and following consultations with international experts, the International Committee of the Red Cross (ICRC) drew up guidelines for incorporating IHL rules on the protection of the natural environment into military manuals and instructions, with the aim of improving the training of armed forces in these rules and ultimately increasing compliance with them.[7] The *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict* were submitted to the UN in 1994 as a contribution to the Decade of International Law. Although the UN General Assembly did not formally approve them, it invited all States to disseminate them widely and to "give due consideration to the possibility of incorporating [the Guidelines] into their military manuals and other instructions addressed to their military personnel".[8]

6. Since the 1994 Guidelines were released, incidents such as the contamination of the Danube river following the bombing of industrial facilities during the conflict in Serbia in 1999, the pollution of groundwater in the Gaza Strip as a result of military operations in 2008, and the deforestation exacerbated by years of conflict in the Democratic Republic of the Congo have highlighted the enduring need to reaffirm and promote greater respect for the IHL rules protecting the natural environment.[9] While a certain level of environmental damage is inherent in armed conflict, it cannot be unlimited. Although IHL does not address all environmental impacts of armed conflict, it does contain rules that provide protection to the natural environment and that seek to limit the damage caused to it.

7. To meet the ongoing challenge, the international legal framework protecting the natural environment in situations of armed conflict has continued to develop. Of particular significance, the International Court of Justice (ICJ), in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons (hereinafter Nuclear Weapons Advisory Opinion), observed that "while the existing international law relating to the protection and safeguarding of the environment does not specifically prohibit the use of nuclear weapons, it indicates important environmental factors that are properly to be taken into account in the context of the implementation of the principles and rules of the law applicable in armed conflict".[10] Since then, indicating general concern, the UN has adopted multiple resolutions addressing the protection of the environment during armed conflicts.[11] Furthermore, at a diplomatic conference convened by the UN General Assembly in 2017, 122 States adopted the Treaty on the Prohibition of Nuclear Weapons, the first international legally binding instrument to comprehensively ban nuclear weapons based on the principles and rules of IHL, including its rules on the protection of the natural environment.[12] The Treaty includes provisions requiring the environmental remediation of areas contaminated by the use or testing of nuclear weapons.[13] Once it enters into force, it will form a critical part of the legal protection provided to the natural environment, given that nuclear war could cause long-term damage to our planet, severely disrupt the earth's ecosystem, reduce global temperatures and trigger global food shortages.

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[6] UN General Assembly, Res. 47/37, Protection of the environment in times of armed conflict, 25 November 1992, Preamble: "*Welcoming* the activities of the International Committee of the Red Cross in this field, including plans to continue its consultation of experts with an enlarged basis of participation and its readiness to prepare a handbook of model guidelines for military manuals …".

[7] ICRC, *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict*, 1994, annexed to UN General Assembly, *United Nations Decade of International Law: Report of the Secretary-General*, UN Doc. A/49/323, 19 August 1994.

[8] UN General Assembly, Res. 49/50, United Nations Decade of International Law, 9 December 1994, para. 11. This invitation was echoed in 2016 by UN Environment Assembly, Res. 2/15, Protection of the environment in areas affected by armed conflict, 27 May 2016, para. 5. For an overview of the discussions that took place in the UN General Assembly, see M. Bothe, "Military activities and the protection of the environment", *Environmental Policy and Law*, Vol. 37, No. 2/3, 2007, p. 234.

[9] For more on the need to strengthen IHL rules on the protection of the natural environment, see ICRC, *Strengthening Legal Protection for Victims of Armed Conflicts*, Report submitted to the 31st International Conference of the Red Cross and Red Crescent, ICRC, Geneva, October 2011, pp. 14–17.

[10] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 33.

[11] See e.g. UN Environment Assembly, Res. 3/1, Pollution mitigation and control in areas affected by armed conflict or terrorism, 6 December 2017; and UN Environment Assembly, Res. 2/15, Protection of the environment in areas affected by armed conflict, 27 May 2016. See also e.g. UN General Assembly, Res. 64/195, Oil slick on Lebanese shores, 21 December 2009. At a UN Security Council Arria-formula meeting on the protection of the environment in armed conflict on 8 November 2018, several States referred to the need to better implement existing legal frameworks, while a few noted the need to further develop the law.

[12] Treaty on the Prohibition of Nuclear Weapons (2017), preambular paragraph 9.

[13] *Ibid.*, Arts 6(2) and 7(6). The Treaty's preamble refers to the catastrophic humanitarian consequences, which pose grave implications for the environment, that would result from any use of nuclear weapons and recalls IHL rules on the protection of the natural environment. See also ICRC, Advisory Service on International Humanitarian Law, *2017 Treaty on the Prohibition of Nuclear Weapons*, Factsheet, 2018. More generally on nuclear weapons and IHL, see ICRC, *Nuclear Weapons and International Humanitarian Law*, Information Note No. 4, ICRC, Geneva, 2013. Note that the Treaty on the Prohibition of Nuclear Weapons has not been included in the present Guidelines as, at the time of writing, it had not yet entered into force.

8. Efforts are under way to clarify and strengthen the international legal framework that governs the protection of the natural environment in armed conflict.[14] States' interest in the issue has recently gained momentum.[15] The International Law Commission (ILC) appointed two special rapporteurs in 2013 and 2017, respectively, to address the protection of the environment in relation to armed conflicts. Informed by the reports of these special rapporteurs[16] and by debates in the Commission and in the Sixth Committee of the UN General Assembly, the ILC produced the Draft Principles on the Protection of the Environment in Relation to Armed Conflicts which, along with their commentaries, were adopted on first reading at the ILC's seventy-first session in 2019.[17] The Draft Principles address the protection of the environment before a potential armed conflict, during a conflict and after a conflict. The ILC subsequently presented the report of its work to the Sixth Committee during the 74th session of the UN General Assembly. The ILC is providing States and international organizations with the opportunity to comment on the Draft Principles and Commentaries throughout 2020. Based on this feedback, the ILC is expected to conduct the second reading in 2021.

The 2020 ICRC Guidelines

9. In 2009, at a seminar organized by the United Nations Environment Programme (UNEP) and the ICRC, it was agreed that the 1994 Guidelines needed to be updated and efforts to promote them stepped up. The Legal Division of the ICRC has undertaken this work.

10. The resulting *Guidelines on the Protection of the Natural Environment in Armed Conflict* takes account of developments in treaty and customary law since 1994, drawing in particular on the clarifications provided by the ICRC's 2005 Study on Customary International Humanitarian Law.[18] The Guidelines rely on this study as it represents the ICRC's reading of the status of customary law; the accompanying commentary seeks to address diverging views on the study and, where relevant, the customary status of certain of its rules. The 2020 Guidelines, like the 1994 version, focus on how rules of IHL protect the natural environment. The interaction between IHL and other bodies of international law in situations of armed conflict is not the focus and is addressed only briefly in the section on preliminary considerations below.[19]

11. The 2020 Guidelines are a concerted continuation of the ICRC's efforts to raise awareness of the need to protect the natural environment from the effects of armed conflict but also go beyond the original aim of the 1994 Guidelines. The latter document served primarily as a reference tool for the incorporation of IHL rules on the protection of the natural environment into military manuals and instructions. By contrast, the present Guidelines aim to serve as a reference for all parties concerned, be they State organs (including in the executive, legislative and judicial

[14] See e.g. UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, UNEP, Nairobi, 2009, produced with the stated purpose of identifying gaps in the existing legal framework and recommending how these should be addressed. See also the work of the International Union for Conservation of Nature (IUCN) and its Peace, Security and Conflict Specialist Group: https://www.iucn.org/commissions/world-commission-environmental-law/our-work/peace-security-and-conflict (all web links accessed August 2020).

[15] See, in this respect, the UN Environment Assembly resolutions referred to in fn. 11 above. In addition, the UN Security Council held Arria-formula meetings on the protection of the environment during armed conflict in November 2018 and December 2019. The UN secretary-general has also addressed the environmental impact of conflict and climate change; see UN Security Council, *Protection of civilians in armed conflict: Report of the Secretary-General*, UN Doc. S/2020/366, 6 May 2020, p. 11.

[16] For the reports of the first special rapporteur appointed in 2013, see ILC, *Preliminary report on the protection of the environment in relation to armed conflicts submitted by Marie G. Jacobsson, Special Rapporteur*, UN Doc. A/CN.4/674, 30 May 2014; ILC, *Second report on the protection of the environment in relation to armed conflicts submitted by Marie G. Jacobsson, Special Rapporteur*, UN Doc. A/CN.4/685, 28 May 2015; and ILC, *Third report on the protection of the environment in relation to armed conflicts submitted by Marie G. Jacobsson, Special Rapporteur*, UN Doc. A/CN.4/700, 3 June 2016. For the reports of the second special rapporteur appointed in 2017, see ILC, *First report on protection of the environment in relation to armed conflicts by Marja Lehto, Special Rapporteur*, UN Doc. A/CN.4/720, 30 April 2018; and ILC, *Second report on protection of the environment in relation to armed conflicts by Marja Lehto, Special Rapporteur*, UN Doc. A/CN.4/728, 27 March 2019.

[17] See ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflict (2019), reproduced in UN General Assembly, *Report of the International Law Commission: Seventy-first session (29 April–7 June and 8 July–9 August 2019)*, UN Doc. A/74/10, UN, New York, 2019, Chap. VI. Protection of the environment in relation to armed conflicts, pp. 209–296. For further information on the drafting process, see the summary of the work of the ILC on the protection of the environment in relation to armed conflicts: http://legal.un.org/ilc/summaries/8_7.shtml.

[18] See J.M. Henckaerts and L. Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. I: *Rules* and Vol. II: *Practice*, ICRC, Geneva/Cambridge University Press, Cambridge, 2005, reprinted 2009: https://ihl-databases.icrc.org/customary-ihl/eng/docs/home (hereinafter *ICRC Study on Customary International Humanitarian Law*). References in the present Guidelines to page numbers in the ICRC Customary International Humanitarian Law Study are to the 2009 reprint. PDFs of this publication are available at: https://www.icrc.org/en/doc/assets/files/other/customary-international-humanitarian-law-i-icrc-eng.pdf (Vol. I) and https://www.icrc.org/en/doc/assets/files/other/customary-international-humanitarian-law-ii-icrc-eng.pdf (Vol. II, Parts 1 and 2). For ease of reference, links in individual footnotes to specific rules are also provided to the corresponding rule in the ICRC's online Customary International Humanitarian Law Database.

[19] Regarding the protection of the natural environment in armed conflict afforded by bodies of international law other than IHL, see paras 25–41 of the present Guidelines.

branches), non-state actors that are party to an armed conflict, or other actors who may be in a position to influence the behaviour of parties to an armed conflict. This broader scope recognizes the reality that there are State authorities beyond the armed forces, such as parliamentarians and judicial bodies, that can play an important role in promoting, implementing and enforcing the law. Furthermore, with the proliferation of non-international armed conflicts, it is also critical to disseminate IHL and promote greater compliance with these rules by non-state armed groups. Other actors can also have a positive influence in this respect on parties to an armed conflict.

12. The 2020 Guidelines are a collection of existing IHL rules. Where necessary, they also seek to provide further clarification of these rules. It must be emphasized that, as was the case for the 1994 Guidelines, the present Guidelines are a restatement of the law as it stands in the eyes of the ICRC. As such, they should not be interpreted as limiting or prejudicing existing obligations under international law or as creating or developing new ones.

13. The content of the 1994 Guidelines remains valid today, and the 2020 Guidelines preserve their key elements. To clarify the source and applicability of these elements, the 2020 Guidelines are more detailed than their predecessor. The structure has also been altered to set out first the relevant rules of customary international law, including those identified in the ICRC study, followed by additional treaty obligations as applicable. As the Guidelines reflect existing obligations under international law, the present document has opted to refer to these as "rules" throughout. In the few cases where these are recommendations rather than obligations, the Guidelines refer to them as "recommendations". Lastly, a concise commentary accompanies each rule or recommendation to aid interpretation and to clarify its source. The 2020 Guidelines have undergone a process of external peer review by practitioners and academics, who contributed input in their personal capacity.[20]

Key recommendations for implementation of the Guidelines

14. The 2020 Guidelines are intended to facilitate the adoption of concrete measures to reduce the environmental impact of armed conflict. To support this implementation, the ICRC proposes the following measures that States may choose to adopt:

- **Disseminate IHL rules protecting the natural environment as reflected in these Guidelines and integrate them into armed forces' doctrine, education, training and disciplinary systems.** National IHL committees or similar entities could be tasked with advising and assisting national authorities in this regard.
- **Adopt and implement measures to increase understanding of the effects of armed conflict on the natural environment prior to and regularly during military operations, whenever feasible and operationally relevant**, to minimize the direct and indirect impacts of military operations on the natural environment. Whenever feasible, States could, for example, carry out prior assessments of the environmental impact of military operations or map areas of particular environmental importance or fragility prior to the conduct of military operations.
- **Identify and designate areas of particular environmental importance or fragility as demilitarized zones.** Such areas could include national parks, natural reserves and endangered species habitats. These could be designated as demilitarized zones from where all military action and the presence of troops and military material are barred. Designation could take place before an armed conflict occurs, i.e. in peacetime, or after fighting breaks out.
- **Exchange examples and good practices of measures that can be taken to comply with IHL obligations protecting the natural environment, through activities such as conferences, military training and exercises, and regional forums.** States could also, for example, carry out or share scientific assessments of the proportionality of damage caused to the natural environment by certain types of weapons. They could furthermore offer other States technical advice on measures that can better protect areas of particular environmental importance or fragility.

States and National Red Cross and Red Crescent Societies have submitted a variety of pledges of this kind to improve the protection of the natural environment in armed conflict.[21]

[20] See annex for the list of experts who participated in the peer review.

[21] See e.g. the pledges submitted at the 33rd International Conference of the Red Cross and Red Crescent, Geneva, 2019, jointly by the Governments and National Red Cross Societies of Denmark, Finland, Iceland, Norway and Sweden; by the Government of Finland; and the Finnish Red Cross and by the Government of Burkina Faso: https://rcrcconference.org/about/pledges/search. See also the earlier pledge made by the Governments of Denmark, Finland, Norway and Sweden concerning the development of the legal framework for the protection of the environment in armed conflict, Pledge P1290, presented at the 31st International Conference of the Red Cross and Red Crescent, Geneva, 28 November–1 December 2011.

Preliminary considerations on the protection of the natural environment under international humanitarian law

The notion of the natural environment

15. There are no agreed definitions of the terms "environment" or "natural environment" in international law. In international environmental law, there are different approaches to their meaning. Often, international environmental instruments refrain from defining the concept of the environment, refer to it in broad terms or address it in the limited context of a particular instrument.[22] Generally speaking, however, the concept of the environment in international environmental law encompasses "both the features and the products of the natural world and those of human civilization".[23] In keeping with this general understanding, the ILC considers that the notion of the environment "represents a complex system of interconnections where the factors involved (such as humans and the natural environment) interact with each other in different ways that 'do not permit them to be treated as discrete'".[24]

16. The notion of the "natural environment" for the purposes of IHL is not defined in Additional Protocol I or its negotiating history, and there are different views on its precise meaning.[25] The present Guidelines understand the "natural environment" to constitute the natural world together with the system of inextricable interrelations between living organisms and their inanimate environment, in the widest sense possible. This understanding is provided here for the sake of clarity, but it is underpinned by the ICRC's reading of the drafting history of Additional Protocol I and the rules themselves. During the negotiation of Additional Protocol I, the report of the Group "Biotope", set up by Committee III of the 1974–1977 Diplomatic Conference to work on the environmental provisions of the Protocol, noted that the "natural environment relates to external conditions and influences which affect the life, development and the survival of the civilian population and to living organisms", while the human environment relates only to the "immediate surroundings in which the civilian population lives".[26] Of particular significance is that this notion does not refer exclusively to organisms and inanimate objects in isolation. Rather, the term "natural environment" also refers more broadly to the *system* of inextricable interrelations between living organisms and their inanimate environment.[27] The notion of the natural environment under IHL includes everything that exists or occurs naturally, such as the general hydrosphere, biosphere, geosphere and atmosphere (including fauna, flora, oceans and other bodies of water, soil and rocks).[28] The natural environment moreover includes natural

[22] For an overview, see ILC, *Second report by Special Rapporteur Marja Lehto*, pp. 82–86. See also the statements before the Sixth Committee of the UN General Assembly by Austria, 69th session, Agenda item 78, 3 November 2014; Malaysia, 71st session, Agenda item 78, 28 October 2016 and 73rd session, Agenda item 82, 31 October 2018, para. 4; Micronesia (Federated States of), 71st session, Agenda item 78, 1 November 2016; and New Zealand, 69th session, Agenda item 78, 3 November 2014, p. 3.

[23] P. Sands *et al.*, *Principles of International Environmental Law*, 4th edition, Cambridge University Press, Cambridge, 2018, p. 14, cited in ILC, *Second report by Special Rapporteur Marja Lehto*, para. 196. The European Union (EU) and North Atlantic Treaty Organization (NATO) both define the term "environment" as "[t]he surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation": NATO, *NATO Glossary of Terms and Definitions*, AAP-06, NATO Standardization Office, 2019, p. 49; and EU Military Committee, *European Union Military Concept on Environmental Protection and Energy Efficiency for EU-led military operations*, EEAS 01574/12, 14 September 2012, p. 8.

[24] ILC, *Second report by Special Rapporteur Marja Lehto*, para. 196.

[25] Program on Humanitarian Policy and Conflict Research at Harvard University (HPCR), *Manual on International Law Applicable to Air and Missile Warfare*, Cambridge University Press, Cambridge, 2013, commentary on Rules 88–89, pp. 247–248, para. 6.

[26] Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law, Geneva, 1974–1977, *Report of the Chairman of the Group "Biotope"*, 11 March 1975, CDDH/III/GT/35, para. 5, reprinted in H.S. Levie, *Protection of War Victims: Protocol I to the 1949 Geneva Conventions*, Vol. 3, Oceana Publications, Dobbs Ferry (N.Y.), 1980, p. 267.

[27] Y. Sandoz, C. Swinarski and B. Zimmermann (eds), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, ICRC, Geneva/Martinus Nijhoff, Leiden, 1987, p. 415, para. 1451. The Commentary adds: "This is a kind of permanent or transient equilibrium depending on the situation, though always relatively fragile, of forces which keep each other in balance and condition the life of biological groups." See also *ibid.*, p. 411, para. 1444, which notes that the "concept of the ecosystem brings us to the essence of Article 35, paragraph 3 (identical on this point to that of Article 55 – *Protection of the natural environment*), as opposed to the concept of the human environment". This notion of interaction is also addressed in ILC, *Preliminary report by Special Rapporteur Marie G. Jacobsson*, para. 79.

[28] See Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 662, para. 2126; ENMOD Convention (1976), Art. II, which prohibits "techniques 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"; and ILC, *Preliminary report by Special Rapporteur Marie G. Jacobsson*, paras 79–86. See also M.N. Schmitt and L. Vihul (eds), *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*, 2nd ed., Cambridge University Press, Cambridge, 2017, Rule 143, pp. 537–538, which adopts the ENMOD definition (with the exception of outer space); and J.M. Henckaerts and D.

elements that are or may be the product of human intervention, such as foodstuffs, agricultural areas, drinking water and livestock.[29]

17. Taking into account the above, and as noted in the commentary on Article 55 of Additional Protocol I, the term "natural environment" should be understood in the widest possible sense, in line with the meaning States have given it in the context of IHL.[30] This approach accords with the fact that the notion of the "natural environment" may evolve over time, as knowledge about it increases and as the environment itself is constantly changing.[31]

Constantin, "Protection of the natural environment", in A. Clapham and P. Gaeta (eds), *The Oxford Handbook of International Law in Armed Conflict*, Oxford University Press, Oxford, 2014, p. 471; C. Droege and M.L. 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, p. 25. See also e.g. New Zealand, *Manual of Armed Forces Law: Law of Armed Conflict*, Vol. 4, 2017, p. 8-45, which states that the "[n]atural environment includes all forests and vegetation, waters, lakes and seas, the soil and sub-soil, and the air". For the view that "the environment" also includes interaction with elements of human civilization, see fns 23 and 24 above and corresponding text. During the negotiation of Additional Protocol I, several initial proposals referred to "means and methods which destroy natural *human* environmental conditions" or "which disrupt or destroy the natural conditions of the *human* environment" (emphasis added); see e.g. the proposals of the German Democratic Republic, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. III, CDDH/III/108, 11 September 1974, p. 155, para. 4; and jointly of the Democratic Republic of Viet-Nam and Uganda, *ibid.*, Vol. III, CDDH/III/238 and Add. I, 25 February 1975, p. 157, para. 5.

[29] See Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 662, para. 2126. See also M.N. Schmitt, "Green war: An assessment of the environmental law of international armed conflict", *Yale Journal of International* Law, Vol. 22, 1997, p. 5.

[30] See Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 662, para. 2126; Henckaerts/Constantin, "Protection of the natural environment", p. 471; and Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 25.

[31] See ILC, *Second report by Special Rapporteur Marja Lehto*, para. 192.

The civilian character of the natural environment

18. It is generally recognized today that, by default, the natural environment is civilian in character.[32] This recognition is reflected in State practice,[33] the ILC's work on the protection of the environment in relation to armed conflicts,[34] and other important practice and scholarly work.[35] This reflects the fact that the system of IHL classifies everything

[32] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. 1, commentary on Rule 43.A, p. 143: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43 and related practice. The broad manner in which the natural environment is defined has generated differing views as to whether the natural environment as a whole, rather than its composite individual parts, can be characterized as a civilian object. The present Guidelines do not address this debate, as in practice what matters to ensure effective protection of the natural environment is that all its individual parts are considered civilian objects unless they become military objectives. For arguments as to why the natural environment as a whole should not be considered a civilian object, see e.g. W. Heintschel von Heinegg and M. Donner, "New developments in the protection of the natural environment in naval armed conflicts", *German Yearbook of International Law*, Vol. 37, 1994, p. 289.

[33] Various States have expressed positions related to the civilian character of the natural environment in the context of the ILC's work on the protection of the environment in relation to armed conflicts: Denmark, Finland, Iceland, Norway and Sweden (in a joint statement), as well as Israel, Italy, Mexico, New Zealand and Switzerland expressed support for the ILC's proposed approach according to which "no part of the [natural] environment may be attacked, unless it has become a military objective", suggesting that this reflected existing IHL. Similarly, Germany recognized that "attacks against the natural environment are prohibited unless it has become a military objective" and Peru indicated that the principles of distinction, proportionality and precautions apply to the natural environment. A few States expressed less clear or assertive positions: for example, the United States stated that "parts of the natural environment cannot be made the object of attack unless they constitute military objectives", while questioning whether environmental considerations are always relevant for the application of the principle of proportionality. Croatia and El Salvador had diverging views, stating that they did not support the classification of the natural environment as civilian in nature. For details of these statements before the Sixth Committee of the UN General Assembly, see Croatia, 70th session, Agenda item 83, 10 November 2015; El Salvador, 70th session, Agenda item 83, 9–11 November 2015 and 71st session, Agenda item 78, 1 November 2019; Germany, 74th session, Agenda item 79, 5 November 2019; Israel, 70th session, Agenda item 83, 11 November 2015; Italy, 70th session, Agenda item 83, 6 November 2015; Mexico, 71st session, Agenda item 78, 2 November 2016; New Zealand, 70th session, Agenda item 83, 11 November 2015 and 74th session, Agenda item 79, 31 October 2019; Norway on behalf of the Nordic countries, 70th session, Agenda item 83, 9 November 2015; Peru, 71st session, Agenda item 78, 2 November 2016 and 74th session, Agenda item 79, 5 November 2019; Switzerland, 68th session, Agenda item 81, 4 November 2013, 69th session, Agenda item 78, 3 November 2014 and 70th session, Agenda item 83, 11 November 2015; and United States, 68th session, Agenda item 81, 4 November 2013 and 70th session, Agenda item 83, 10 November 2015. For further State practice indicating that the natural environment is civilian in character, or applying the general rules of the conduct of hostilities to the natural environment, see e.g. Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 5.50; Australia, Statement before the Sixth Committee of the UN General Assembly, 46th session, Agenda item 140, 22 October 1991, para. 7; Austria, Statement before the Sixth Committee of the UN General Assembly, 47th session, Agenda item 136, 1 October 1992, para. 37; Burundi, *Règlement n° 98 sur le droit international humanitaire*, 2007, Part I *bis*, p. 5, as well as p. 19; Canada, Statement before the Sixth Committee of the UN General Assembly, 47th session, Agenda item 136, 1 October 1992, para. 20; Côte d'Ivoire, *Droit de la guerre : Manuel d'instruction*, Livre III, Tome 1: *Instruction de l'élève officier d'active de 1ère année, Manuel de l'élève*, 2007, p. 35; EU Military Committee, *European Union Military Concept on Environmental Protection and Energy Efficiency for EU-led military operations*, para. 11(g); Italy, *Manuale di diritto umanitario*, 1991, Vol. I, para. 85; Jordan and United States, "International Law Providing Protection to the Environment in Times of Armed Conflict", Memorandum annexed to Letter dated 28 September 1992 to the Chairman of the Sixth Committee of the UN General Assembly, UN Doc. A/C.6/47/3, 28 September 1992, para. 1(h); Mexico, *Manual de Derecho Internacional Humanitario para el Ejército y la Fuerza Área Mexicanos*, 2009, paras 255 and 260; Netherlands, *Humanitair Oorlogsrecht: Handleiding*, 2005, para. 1037; New Zealand, *Manual of Armed Forces Law: Law of Armed Conflict*, Vol. 4, 2017, p. 14-34; Norway, *Penal Code*, 1902, as amended in 2008, para. 106(c); Switzerland, *Bases légales du comportement à l'engagement*, 2003, para. 225; Switzerland, *ABC of International Humanitarian Law*, 2009, pp. 12 and 20; United States, *The Commander's Handbook on the Law of Naval Operations*, 2007, para. 8.4; and ICRC Study on Customary International Humanitarian Law, *Report on US Practice*, 1997, Chap. 4.5. For a statement by the United States that "parts of the natural environment cannot be made the object of attack unless they constitute military objectives, as traditionally defined", see J.B. Bellinger III and W.J. Haynes II, "A US Government response to the International Committee of the Red Cross Study on Customary International Humanitarian Law", *International Review of the Red Cross*, Vol. 89, No. 866, June 2007, p. 455.

[34] See ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), Principles 13 and 14, pp. 250–256, in particular pp. 252–253.

[35] See ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, paras 30 and 32; International Criminal Tribunal for the former Yugoslavia (ICTY), *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, 14 June 2000, paras 15 and 18; L. Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, prepared by international lawyers and naval experts convened by the International Institute of Humanitarian Law (IIHL), adopted in June 1994, Cambridge University Press, Cambridge, 1995, p. 9, para. 13(c); International Conference for the Protection of War Victims, Geneva, 30 August–1 September 1993, Final Declaration, para. I (10), *International Legal Materials*, Vol. 33, 1994, p. 301; M.N. Schmitt, C.H.B. Garraway and Y. Dinstein (eds), *The Manual on the Law of Non-International Armed Conflict, with Commentary*, IIHL, San Remo, 2006, Rule 4.2.4, p. 59; UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 13; International Law Association (ILA) Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", *International Law Studies*, Vol. 93, No. 322, 2017, p. 362; Schmitt/Vihul (eds), *Tallinn Manual*, Rule 143 and commentary, pp. 537–538, paras 1 and 4 (and references in fns 1329 and 1334); and ICRC, *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict*. See, further, Henckaerts/Constantin, "Protection of the Natural Environment", p. 474; Droege/Tougas, "The protection of the natural environment in armed conflict:

that can be the subject of an attack or destruction as either a civilian object or as a military objective; civilian objects are all objects which are not military objectives.[36] In this regard, it is notable that, although Article 55 of Additional Protocol I does not specifically designate all parts of the natural environment as civilian objects, this provision falls under Part IV, Section I, Chapter III of the Protocol, entitled "Civilian objects". On this basis, all parts or elements of the natural environment are civilian objects, unless some become military objectives.[37] Its various parts are, therefore, protected as such by the general rules of IHL protecting civilian objects.[38] However, parts of the natural environment can become military objectives according to the normal rule – that is, if, by their nature, location, purpose or use, they make an effective contribution to military action and their total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.[39]

19. There is, however, some debate as to whether all parts of the natural environment that do not qualify as military objectives are necessarily civilian objects. Some consider that the protection of the natural environment should be based on an anthropocentric approach, rather than on its "intrinsic value".[40] According to the anthropocentric view, the natural environment is only protected by IHL if it affects the civilian population.[41] Under this view, not all parts of the natural environment are "objects" as the term is understood in IHL; rather, a part of the natural environment constitutes a civilian object only when it is used or relied upon by civilians or when harm to it affects civilians.[42] Consequently, if a part of the natural environment is not used or relied upon by humans in any way or does not affect humans – for example, a bush in the middle of the desert – it is not a civilian object under this view and is therefore not protected by the general rules of IHL protecting such objects; accordingly, such parts need not be considered in conduct of hostility assessments. Meanwhile, the "intrinsic value" approach protects the natural environment *per se*, even if damage to it would not necessarily harm humans in a reasonably foreseeable way for the purposes of IHL assessments. This approach recognizes the intrinsic dependence of all humans on the natural environment, as well as the still relatively limited knowledge of the effects of armed conflict on the environment and the implications of this for civilians.

20. Historically, IHL took a largely anthropocentric approach to the protection of the natural environment. Before 1976, there were no specific provisions devoted to it. The end of the Vietnam War, and the adoption of the ENMOD Convention and Additional Protocol I – although still largely anthropocentric – marked the beginning of a movement towards an intrinsic value approach. During the negotiation of the Additional Protocols, there were two

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Existing rules and need for further legal protection", p. 24; K. Hulme, "Taking care to protect the environment against damage: A meaningless obligation?", *International Review of the Red Cross*, Vol. 92, No. 879, September 2010, p. 678; M. Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", *International Review of the Red Cross*, Vol. 92, No. 879, September 2010, p. 576; and Y. Dinstein, "Protection of the environment in international armed conflict", *Max Planck Yearbook of United Nations Law*, Vol. 5, 2001, pp. 533–534.

[36] Additional Protocol I (1977), Art. 52(1); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 9, p. 32: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule9. This would seem to be the implicit understanding behind the interpretative declarations of a number of States on Additional Protocol I, according to which a specific area of land can constitute a military objective; see the ratifications of Canada, Germany, Italy and the United Kingdom in A. Roberts and R. Guelff (eds), *Documents on the Laws of War*, 3rd ed., Oxford University Press, Oxford, 2000, pp. 502, 505, 507 and 511. See also K. Hulme, *War Torn Environment: Interpreting the Legal Threshold*, Martinus Nijhoff Publishers, Leiden, 2004, p. 300.

[37] For a fuller argumentation of this position, see Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 25–27.

[38] For how these general rules protect the natural environment, see Part II of the present Guidelines. The rules reflect Rule 43 of the ICRC Study on Customary International Humanitarian Law, according to which "[t]he general principles on the conduct of hostilities apply to the natural environment": Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 43, p. 143: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43.

[39] In line with Additional Protocol I (1977), Art. 52(2). For further details as to when a part of the natural environment can become a military objective, see Rule 5 of the present Guidelines, which sets out the obligation of distinction.

[40] For more on the "anthropocentric" and "intrinsic" approaches to environmental protection and the discussions during the 1974–1977 Diplomatic Conference, see M. Bothe, K.J. Partsch and W.A. Solf, *New Rules for Victims of Armed Conflicts: Commentary on the Two 1977 Protocols Additional to the Geneva Conventions of 1949*, 2nd ed., Martinus Nijhoff Publishers, Leiden, 2013, p. 387; and Schmitt, "Green war", pp. 6–7 and 70–71.

[41] See the statement of the United Kingdom at the 1974–1977 Diplomatic Conference explaining its vote against Article 33(3) (now Article 35(3)) of Additional Protocol I, in which it stated that provisions protecting the environment should be considered in the context of the health and survival of the civilian population: *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XIV, CDDH/III/SR.38, p. 410, para. 46. See also the statement of Israel to the effect that IHL requires "the protection of the environment to a certain extent, by limiting environmental harm that prejudices the health and well-being of the civilian population": Israel, Statement before the Sixth Committee of the UN General Assembly, 73rd session, Agenda item 82, 31 October 2018.

[42] For a discussion of the position held by Israel that the natural environment is not an "object" as the term is used in IHL, see M.N. Schmitt and J.J. Merriam, "The tyranny of context: Israeli targeting practices in legal perspective", *University of Pennsylvania Journal of International Law*, Vol. 37, No. 1, 2015, p. 99, in which the authors also specify that this is neither their position nor that held by the United States. See also Bellinger/Haynes, "A US Government response to the International Committee of the Red Cross Study on Customary International Humanitarian Law", p. 455.

views in the Working Group tasked with drafting provisions affording protection to the natural environment: "Some delegates were of the view that the protection of the environment in time of war is an end in itself, while others considered that the protection of the environment has as its purpose the continued survival or health of the civilian population."[43] Ultimately, the provisions proposed by this Group resulted in the adoption of Articles 35(3) and 55 of Additional Protocol I. While Article 55 reflects, at least from the outset, the anthropocentric approach, Article 35(3) clearly protects the environment as such, and thus reflects the intrinsic approach. As noted in the 1987 ICRC commentary on Article 35(3), "[i]t is the natural environment itself that is protected. It is common property, and should be retained for everyone's use and be preserved."[44] The period after the 1990–1991 Gulf War marked another moment in this general trend towards the protection of the natural environment as such, and since then the intrinsic value approach has continued to gain ground.[45]

21. As noted above, it is the ICRC's view that all parts of the natural environment are civilian objects, unless they have become military objectives. In this sense, there is no "grey zone" in which a part of the natural environment is neither a military objective nor a civilian object. Accordingly, this view is the one adopted throughout these Guidelines. However, the differences between the anthropocentric and intrinsic approaches should be borne in mind as implications for how IHL rules apply to the protection of the natural environment may vary depending on the approach taken. To return to the earlier example, a bush in the middle of an uninhabited desert may not be considered a civilian object under the anthropocentric approach and would not be protected as such under IHL. An anthropocentric view also arguably accords with certain common military practices by which armed forces direct fire at or release a piece of ordnance on parts of the natural environment in situations where such parts do not necessarily fulfil the definition of military objective (for example, calibrating artillery by firing a shell at empty open ground or a group of trees in order to improve accuracy). The ICRC does not view States' affirmation of the civilian character of the natural environment as intending to outlaw these standard practices, and the present Guidelines likewise do not seek to change them.[46] Nor, however, does the ICRC consider that it is sufficient practice to put into question the intrinsic approach to the protection of the natural environment.

Existing obligations under IHL

In situations of armed conflict, IHL treaty and customary rules provide the natural environment with specific and general protection.

22. IHL protects the natural environment in different ways. The first type of protection consists of those rules that grant *specific* protection to the natural environment as such, in that they have that as their purpose. These protections are set out in Part I of these Guidelines and include rules on prohibitions and restrictions on methods and means of warfare that may cause widespread, long-term and severe damage to the natural environment, the prohibition of using the destruction of the natural environment as a weapon and the prohibition of attacking the natural environment by way of reprisal.

23. The second type of protection consists of *general* rules that protect, among other things, the natural environment, without this being their specific purpose. Part II of the Guidelines sets out general protections that, in the ICRC's view, are provided to all parts or elements of the natural environment as civilian objects by the principles of distinction, proportionality and precautions; protections provided by the rules on specially protected objects other than the natural environment; protections provided to parts of the natural environment as civilian objects by the rules on enemy property; and certain additional protections under other general rules of IHL. Part III of the Guidelines then sets out the general protections that, in the ICRC's view, are provided to the natural environment by rules on specific weapons. However, it should be noted that whether and how some of these rules apply to the natural environment is the subject of debate.

24. Among the rules providing general protection to the natural environment, some protect the natural environment directly, others indirectly. Direct protection is provided, for example, by the rules restricting attacks against the natural environment by virtue of its civilian character. Indirect protection is provided, for example, by restricting

[43] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/III/275, p. 358. For a further discussion of this, see para. 73 and fns 197–199 of the present Guidelines.

[44] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 410 and 420, paras 1441 and 1462. Note that the original French edition of the Commentary uses the imperative "must" rather than "should": "C'est l'environnement naturel lui-même qui est protégé. Bien commun à tous, il *doit* rester affecté à l'usage de tous et être préservé." (Emphasis added.)

[45] For an analysis of this trend, see Schmitt, "Green war", pp. 22–36 and 96–98. See also E.C. Gillard, *Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment*, Chatham House, London, December 2018, pp. 36–38, paras 134–136 and references (in particular fn. 109), noting that "[t]oday, the prevailing view supports the alternative, 'intrinsic value' approach".

[46] For further details on this issue, see Rule 5 of the present Guidelines, paras 104–105.

attacks against works or installations containing dangerous forces, on the basis that, while an installation such as a nuclear electrical generating station is evidently not part of the natural environment, an attack against it could have severe effects on the surrounding natural environment.

The protection of the natural environment by bodies of international law other than IHL

In addition to rules of IHL, other rules of international treaty and customary law protecting the natural environment (including rules of international environmental law, international human rights law, the law of the sea and international criminal law) may continue to apply during international and non-international armed conflicts.

25. The present Guidelines and their accompanying commentaries are based on rules of IHL; they do not analyse questions of application and interplay with other bodies of law and are without prejudice to existing obligations under other applicable bodies of international law.

26. The outbreak of an international or non-international armed conflict does not in and of itself terminate or suspend the application of rules of international law (whether treaty or customary) protecting the natural environment in peacetime, either between States party to the conflict or between a State party to the conflict and one that is not.[47] Thus, other rules within different branches of international law may, depending on the context, and in whole or in part, complement or inform the IHL rules protecting the natural environment in times of armed conflict. The continued application of international environmental law and international human rights law, as two of the most important complementary bodies of law, is briefly addressed below. While a comprehensive analysis of the interplay between these bodies of law and IHL is beyond the scope of these Guidelines, it is considered in greater detail by the ILC in its work on the protection of the environment in relation to armed conflicts.[48]

27. When deducing whether treaty provisions continue to apply in situations of armed conflict, the ILC's 2011 Draft Articles on the Effects of Armed Conflicts on Treaties provide a framework for interpretation.[49] As a point of departure, where a treaty itself contains provisions on its operation in situations of armed conflict, those provisions apply.[50] In addition, to ascertain whether a treaty is susceptible to termination, withdrawal or suspension in the event of an armed conflict, regard must be had to all relevant factors, including the nature of the treaty (in particular its subject matter, its object and purpose, its content and the number of Parties) and the characteristics of the armed conflict (such as its territorial extent, its scale and intensity, its duration and, in the case of non-international armed conflict, also the degree of outside involvement).[51] In respect of the nature of a treaty, when considering its subject matter, Article 7 of the Draft Articles provides an indicative list of treaties the subject matter of which involves an implication that they continue in operation, in whole or in part, during armed conflict. This list includes treaties relating to the international protection of the natural environment.[52]

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[47] See ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), reproduced in UN General Assembly, *Report of the International Law Commission: Sixty-third session (26 April–3 June and 4 July–12 August 2011)*, UN Doc. A/66/10, 2011, Article 3, p. 175, para. 100, which states: "The existence of an armed conflict does not *ipso facto* terminate or suspend the operation of treaties: (a) as between States parties to the conflict; (b) as between a State party to the conflict and a State that is not." This is in line with Article 2 of the resolution on "Effects of armed conflicts on treaties" adopted by the Institut de Droit International at its Helsinki session in 1985, as well as with Article 1 of the Règlement Concernant les Effets de la Guerre sur les Traités adopted by the Institut de Droit International at its Christiania session in 1912. On the continued application of customary law, see ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), p. 177, Article 10, which states under the heading "Obligations imposed by international law independently of a treaty": "The termination of or the withdrawal from a treaty, or the suspension of its operation, as a consequence of an armed conflict, shall not impair in any way the duty of any State to fulfil any obligation embodied in the treaty to which it would be subject under international law independently of that treaty." See, further, Finland, statement on behalf of the Nordic Countries before the Sixth Committee of the UN General Assembly, 68th session, Agenda item 81, 4 November 2013.

[48] The purpose of the present Guidelines is not to establish a comprehensive inventory of existing laws that may protect the natural environment in times of armed conflict. Rather, it is to enhance the clarity of the relevant rules of IHL in order to strengthen their implementation. For a more extensive overview of other protective bodies of law, see the reports of the ILC's first and second special rapporteurs on the protection of the environment in relation to armed conflicts referenced in fn 16 above; and UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*.

[49] It must be noted, however, that, while the ILC's work on the effects of armed conflicts on treaties is an important clarification of this complex subject, it does not address how rules of customary international law and principles of international law continue to be applicable in times of armed conflict.

[50] ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), Article 4, p. 175. Note also Article 5 of the Draft Articles, which provides that "[t]he rules of international law on treaty interpretation shall be applied to establish whether a treaty is susceptible to termination, withdrawal or suspension in the event of an armed conflict".

[51] *Ibid.*, Article 6.

[52] The list also includes treaties relating to international watercourses and related installations and facilities, aquifers and related installations and facilities and relating to international human rights and international criminal law.

28. Separately, obligations concerning the protection of the environment that are binding on States not party to an armed conflict (e.g. neighbouring States) and that relate to areas beyond the limits of national jurisdiction (e.g. the high seas) are not affected by the existence of the armed conflict to the extent that those obligations are not inconsistent with the applicable law of armed conflict.[53]

International environmental law

29. International environmental law sets down obligations of environmental protection and regulates responsibility and potential liability for environmental damage. It finds its sources in treaties, general principles and customary international law, as well as related jurisprudence (as a subsidiary means of determining rules of law).[54] Important related soft law instruments include the 1972 Declaration of the UN Conference on the Human Environment (Stockholm Declaration), the 1982 World Charter for Nature, the 1992 Declaration on Environment and Development (Rio Declaration) and relevant resolutions of the UN General Assembly and the UN Environment Assembly.[55]

30. The fact that international norms relating to the protection of the environment must be taken into account in situations of armed conflict has been recognized by the ICJ[56] and is a presumption from which the work of the ILC on the protection of the environment in relation to armed conflicts proceeds.[57] However, determining the extent to which international environmental law applies in parallel to IHL is a more complex question.

31. The ILC's Draft Articles on the Effects of Armed Conflicts on Treaties provide essential guidance in this respect. In line with Article 3 of the Draft Articles, the starting point as to the continued application of an international environmental law treaty is whether the terms of a treaty address its applicability in armed conflict. The ILC's special rapporteur has found that multilateral environmental treaties that directly or indirectly (meaning either by express statement or by inference) provide for their application in times of armed conflict include:[58]

- International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL) (1954)[59]
- Convention concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (1972)[60]
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) (1972)[61]
- International Convention for the Prevention of Pollution from Ships (MARPOL) (1973)[62]

[53] In this respect, see ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), Article 3(b); and ICRC, *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict*, Guideline 5.

[54] For an overview of key multilateral agreements, principles, customary law, and soft law instruments of international environmental law, see UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, pp. 34–43. For a further analysis of environmental principles and concepts, see also ILC, *Preliminary report by Special Rapporteur Marie G. Jacobsson*, paras 117–156.

[55] See e.g. UN General Assembly, Res. 47/37, Protection of the environment in times of armed conflict, 25 November 1992; UN General Assembly, Res. 49/50, United Nations Decade of International Law, 9 December 1994; UN Environment Assembly, Res. 2/15, Protection of the environment in areas affected by armed conflict, 27 May 2016; and UN Environment Assembly, Res. 3/1, Pollution mitigation and control in areas affected by armed conflict or terrorism, 6 December 2017.

[56] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 33.

[57] The parallel application of international environmental law and IHL is discussed in ILC, *Preliminary report by Special Rapporteur Marie G. Jacobsson*, paras 2–7, and with regard to situations of occupation, in ILC, *First report by Special Rapporteur Marja Lehto*. It has since been addressed in the commentaries on the ILC's Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), pp. 215–296.

[58] This list is set out in UN General Assembly, *Report of the Sixty-third session of the International Law Commission*, Annex E, pp. 361–362. For further details and references to other multilateral environmental agreements that specifically provide for suspension, derogation or termination during armed conflict and to those that neither directly nor indirectly address their application during armed conflict, see UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, pp. 34–40.

[59] Note, however, that Article XIX(1) foresees the possibility of suspending the operation of the whole or any part of the Convention in case of war or other hostilities.

[60] In particular, Article 6(3). See also Article 11(4) of the Convention, according to which the outbreak or threat of an armed conflict allows a State Party to place a site on the "list of World Heritage in danger". Note also that in 2000, UNESCO and the United Nations Foundation launched a project entitled "Biodiversity Conservation in Regions of Armed Conflict: Conserving World Heritage Sites in the Democratic Republic of Congo", which uses the World Heritage Convention as an instrument to improve the conservation of world heritage sites in regions affected by armed conflict.

[61] However, note the exceptions in Article V.

[62] As amended by Protocol Relating to the International Convention for the Prevention of Pollution from Ships (1978). However, Article 3(3) of the Convention contains an exception similar to that in Article 236 of UNCLOS.

- Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) (1976) and its Protocols [63]
- Convention on Long-Range Transboundary Air Pollution (1979)
- United Nations Convention on the Law of the Sea (UNCLOS) (1982)[64]
- Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) (1983)[65]
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (1987)[66]
- Convention on the Law of the Non-Navigational Uses of International Watercourses (Watercourses Convention) (1997).[67]
- African Convention on the Conservation of Nature and Natural Resources (2003)[68]

32. In cases where treaties of international environmental law do not indicate whether they continue to operate in situations of armed conflict, or where treaty provisions addressing the issue are unclear, Article 7 of the ILC's Draft Articles indicates that the subject matter of treaties relating to the international protection of the environment involves an implication that they continue to operate, in whole or in part, during armed conflict.[69]

33. Thus, in light of the combined effect of Articles 3, 6 and 7 of the Draft Articles, rules of international treaty law that protect the environment may continue to apply alongside IHL during times of armed conflict.[70] This continued application is subject to two exceptions. The first is when it is expressly stated that a specific rule, or part of it, does not apply during armed conflict.[71] The second is when, provided that it is not expressly stated that a rule *does* apply during armed conflict, its application is incompatible with the characteristics of the armed conflict[72] or with an applicable rule of IHL. This potential incompatibility between a rule of international environmental law and IHL must be considered on a rule-by-rule basis, but where a rule of international environmental law is more protective of the natural environment than the parallel rule of IHL, this difference should be interpreted as incompatibility only if there are clear reasons for doing so.

34. Separately, as far as rules of customary international environmental law are concerned, the applicability of any such rules in the context of armed conflict will depend on whether there is "a general practice accepted as law" (*opinio juris*) in this regard.[73]

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[63] This Convention was initially adopted on 16 February 1976 and amended on 10 June 1995. Article 3(5) of the amended Convention contains an exception similar to that in Article 236 of UNCLOS and Article 3(3) of MARPOL. In addition, Article 3(3) of the Barcelona Convention states that "[n]othing in this Convention and its Protocols shall prejudice the rights and positions of any State concerning the United Nations Convention on the Law of the Sea of 1982". It is worth noting that the International Maritime Organization invoked the 1995 Barcelona Convention as a basis for providing assistance to Lebanon after the bombing of the Jiyeh facility, which caused an oil spill into the Mediterranean during conflict in 2006.

[64] However, see the partial exception for warships and other State-operated vessels and aircraft in Article 236 of the Convention.

[65] This Convention does not contain an exception such as that in Article 3(5) of the 1995 Barcelona Convention.

[66] Although the Convention is silent on its application in situations of armed conflict, Article 2(5) states that a Contracting Party can delete or restrict the boundaries of the wetlands it has already included in its list of wetlands of international importance "because of its urgent national interests". A situation of urgent national interest may include situations of armed conflict.

[67] In particular, Article 29. The Convention entered into force on 17 August 2014.

[68] A revised version of the original 1968 Convention was adopted on 11 July 2003 and entered into force on 23 July 2016. Article XV of the revised Convention directly addresses military and hostile activities and establishes specific obligations in armed conflicts reiterating the protection of the natural environment. Furthermore, the exception for circumstances involving the paramount interest of the State in Article XVI of the original 1968 version was deleted from the exceptions provided for in Article XXV of the 2003 version.

[69] ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), Article 7 and Annex, which identify "treaties relating to the international protection of the environment" in an indicative list of treaties the subject matter of which implies that they continue in operation, in whole or in part, during armed conflict.

[70] See UN General Assembly, *Protection of the environment in times of armed conflict: Report of the Secretary-General*, UN Doc. A/47/328, 31 July 1992, para. 11; UN General Assembly, *Protection of the environment in times of armed conflict: Report of the Secretary-General*, UN Doc. A/48/269, 29 July 1993, para. 24; and ILC, *Preliminary report by Special Rapporteur Marie G. Jacobsson*, para. 108. See, however, United States, Statement before the Sixth Committee of the UN General Assembly, 72nd session, Agenda item 81, 1 November 2017, according to which "the extent to which rules contained in other bodies of law might apply during armed conflict must be considered on a case by case basis".

[71] For a list of multilateral environmental agreements not applicable during armed conflict, see Henckaerts/Constantin, "Protection of the natural environment", p. 483.

[72] ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), Article 6(b).

[73] Regarding customary international environmental law, see also Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", pp. 588–589.

35. Subject to the foregoing assessments regarding the continued application of international environmental law in situations of armed conflict, where a rule of international environmental law and a rule of IHL are found to apply in parallel, the interaction between the two bodies of law remains in need of clarification and has been the subject of considerable study.[74] The ILC's Draft Principles on the Protection of the Environment in Relation to Armed Conflicts make an important contribution in this respect. What is clear, at minimum, is that the interaction between two rules of international environmental law and IHL that apply in parallel is highly context specific.

36. As a general rule, provisions of international environmental law applicable in peacetime continue to apply between States party to an international armed conflict in their relations with third States not party to the armed conflict.[75] The obligations contained in the law of neutrality, such as respect for the inviolability of neutral territory, also govern these relations between States party to an international armed conflict and third States. During a non-international armed conflict, in principle international environmental law continues to apply between States, at least in the case of conflicts without the involvement of third States.[76] Whether a State party to either type of armed conflict failing to fulfil its obligations under international environmental law in its relationship with other States can raise the existence of an armed conflict as a circumstance precluding its responsibility for wrongfulness is unsettled and will likely depend on case specificities.[77]

International human rights law

37. A number of international human rights treaties expressly articulate a human right to a certain standard of environment. For example:

- The International Covenant on Economic, Social and Cultural Rights (ICESCR) (1966) contains a right of "everyone to the enjoyment of the highest attainable standard of physical and mental health" through, among other things, the "improvement of all aspects of environmental and industrial hygiene" (Art. 12).[78]
- The African Charter on Human and Peoples' Rights (1981) provides for the right of all peoples to "a general satisfactory environment favourable to their development" (Art. 24).
- The Additional Protocol to the American Convention on Human Rights (Protocol of San Salvador) (1988) states that "[e]veryone shall have the right to live in a healthy environment and to have access to basic public services" (Art. 11).

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[74] In addition to the ILC's work on this issue, see UNEP's commentary on the applicability of international environmental law during armed conflict, including an overview of scholarly literature on the topic: UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, pp. 43–47; and Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", pp. 569–592. Both of these sources observe that international environmental law is arguably also a form of *lex specialis*.

[75] See UN General Assembly, *Report of the Secretary-General on protection of the environment in times of armed conflict*, 1992, para. 11; and UN General Assembly, *Report of the Secretary-General on protection of the environment in times of armed conflict*, 1993, para. 24. For an additional discussion, see Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", p. 581; and UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 43.

[76] ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), Article 1 and commentary, p. 179: "The typical non-international armed conflict should not, in principle, call into question the treaty relations between States"; and *ibid.*, Article 6(b) and commentary, p. 188: "The greater the involvement of third States in a non-international armed conflict, the greater the possibility that treaties will be affected, and vice-versa." See also UN General Assembly, *Report of the Secretary-General on protection of the environment in times of armed conflict*, 1992, para. 30.

[77] A situation of armed conflict could arguably be raised as a circumstance precluding the responsibility of a State for an internationally wrongful act, for example as a situation of *force majeure* or necessity; see ILC, Draft Articles on Responsibility of States for Internationally Wrongful Acts, adopted at its fifty-third session, 2001, Articles 23 and 25, reprinted in ILC, *Yearbook of the International Law Commission 2001*, Vol. II, Part Two, UN, New York/Geneva, 2007, pp. 76 and 80. Furthermore, under Article 62 of the 1969 Vienna Convention on the Law of Treaties, "a fundamental change of circumstances which has occurred with regard to those existing at the time of the conclusion of a treaty" could also be raised as a ground for terminating or withdrawing from the treaty. However, the ICJ has held that the protection of the environment is an essential interest of all States: ICJ, *Case concerning the Gabčíkovo-Nagymaros Project (Hungary* v. *Slovakia)*, Judgment, 25 September 1997, para. 53. This may limit the use of necessity as a circumstance precluding wrongfulness, given that Article 25(1) of the ILC's 2001 Draft Articles on Responsibility of States for Internationally Wrongful Acts provides:

> Necessity may not be invoked by a State as a ground for precluding the wrongfulness of an act not in conformity with an international obligation of that State unless the act:
>
> (a) is the only way for the State to safeguard an essential interest against a grave and imminent peril; and
>
> (b) does not seriously impair an essential interest of the State or States towards which the obligation exists, or of the international community as a whole.

[78] See also Art. 1(2). On the impact of environmental damage resulting from an armed conflict on the enjoyment of the right to health, see e.g. UN Economic and Social Council, *Report on the situation of human rights in Kuwait under Iraqi occupation, prepared by Mr. Walter Kälin, Special Rapporteur of the Commission on Human Rights, in accordance with Commission resolution 1991/67*, UN Doc. E/CN.4/1992/26, 16 January 1992, para. 208.

- The Convention on the Rights of the Child (1989) provides that, for the full implementation of the right of the child to the enjoyment of the highest attainable standard of health, States Parties must take appropriate measures "to combat disease and malnutrition", while "taking into consideration the dangers and risks of environmental pollution" (Art. 24(2)(C)).
- The Convention concerning Indigenous and Tribal Peoples in Independent Countries (1989) requires States Parties to adopt special measures "for safeguarding the ... environment of the peoples concerned" (Art. 4(1)).[79]
- The Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol) (2003) recognizes the right of women to live in a healthy and sustainable environment and requires States Parties to take all appropriate measures to "ensure greater participation of women in the planning, management and preservation of the environment and the sustainable use of natural resources at all levels" (Art. 18(2)(a)).

38. In addition, a number of international human rights treaties entail protection of the environment through other recognized rights. International human rights bodies and courts have developed a considerable body of case law addressing the environment within the scope of human rights, including the right to life,[80] the right to privacy and family life,[81] minority rights[82] and rights to food and water,[83] in addition to the right to a healthy environment.[84] The UN Human Rights Committee, for example, has recognized that damage to the environment could engage States' obligations to protect the right to life[85] and the UN Committee on Economic, Social and Cultural Rights has found that the right to water in the ICESCR entails an obligation on States Parties to refrain from "unlawfully diminishing or polluting water, for example through ... use and testing of weapons".[86]

39. The Human Rights Council has adopted a number of resolutions on human rights and the environment and has appointed an independent expert to study the human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment.[87] This special rapporteur was mandated to identify and promote best practices

[79] See also Arts 7 and 20(3)(b) of the Convention. The ILC has also recognized the importance of the protection of the environment of indigenous peoples: ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), Principle 5 and commentary, p. 223.

[80] See e.g. European Court of Human Rights, *Öneryildiz* v. *Turkey*, Judgment, 30 November 2004. See also Inter-American Commission on Human Rights, *Report on the situation of human rights in Ecuador*, OEA/Ser.L/V/II.96, Doc. 10 rev. 1, 24 April 1997, Chapter VIII: "The realization of the right to life, and to physical security and integrity is necessarily related to and in some ways dependent upon one's physical environment. Accordingly, where environmental contamination and degradation pose a persistent threat to human life and health, the foregoing rights are implicated." See, further, UN Human Rights Committee, *General comment No. 36, Article 6: right to life*, UN Doc. CCPR/C/GC/36, 3 September 2019, para. 62:

> Environmental degradation, climate change and unsustainable development constitute some of the most pressing and serious threats to the ability of present and future generations to enjoy the right to life ... Implementation of the obligation to respect and ensure the right to life, and in particular life with dignity, depends, inter alia, on measures taken by States parties to preserve the environment and protect it against harm, pollution and climate change caused by public and private actors.

[81] See e.g. European Court of Human Rights, *López Ostra* v. *Spain*, Judgment, 9 December 1994.

[82] See e.g. Inter-American Commission on Human Rights, *Report on the situation of human rights in Brazil*, OEA/Ser.L/V/II.97, Doc. 29 rev.1, 29 September 1997, Chapter VI, para. 82.f, in which the Commission states:

> The Yanomami people have obtained full recognition of their right to ownership of their land. Their integrity as a people and as individuals is under constant attack by both invading prospectors and the environmental pollution they create. State protection against these constant pressures and invasions is irregular and feeble, so that they are constantly in danger and their environment is suffering constant deterioration.

[83] For a review of the jurisprudence of international tribunals and bodies, see D. Shelton, "Human rights and the environment: Substantive rights", in M. Fitzmaurice, D.M. Ong and P. Merkouris (eds), *Research Handbook on International Environmental Law*, Edward Elgar Publishing, Cheltenham, 2010, pp. 265–283. See also D. Shelton, *Human rights and the environment: Jurisprudence of human rights bodies*, Background Paper No. 2, Joint UNEP-OHCHR Expert Seminar on Human Rights and the Environment, Geneva, 14–16 January 2002; and Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 49.

[84] See Inter-American Court of Human Rights, *The Environment and Human Rights*, Advisory Opinion OC-23/17 requested by the Republic of Colombia, 15 November 2017, para. 59; and Inter-American Court of Human Rights, *Case of the Indigenous Communities of the Lhaka Honhat (Our Land) Association* v. *Argentina*, Merits, Reparations and Costs, Judgment, 6 February 2020, paras 202–230 and 243–254.

[85] See UN Human Rights Committee, *EHP* v. *Canada*, Communication No. 67/1980, Decision on Admissibility, 27 October 1982, UN Doc. CCPR/C/OP/1, 1985, para. 8. In this case, Canadian citizens lodged a complaint on the ground that the storage of radioactive waste in their town threatened the right to life of present and future generations. The Committee declared the complaint inadmissible for non-exhaustion of national remedies but observed that "the present communication raises serious issues, with regard to the obligation of States parties to protect human life".

[86] UN Committee on Economic, Social and Cultural Rights, *General comment No. 15 (2002): The right to water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)*, UN Doc. E/C.12/2002/11, 20 January 2003, para. 21.

[87] Human Rights Council, Res. 19/10, Human rights and the environment, 22 March 2012; Human Rights Council, *Report of the Independent Expert on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment,*

and recommendations, and to this end in 2018 issued 16 Framework Principles on Human Rights and the Environment, summarizing the main human rights obligations in this area and providing guidance on their practical implementation.[88]

40. These protections set out by international human rights law are relevant given that it is widely recognized that human rights law provisions applicable in armed conflict complement the protection afforded by IHL.[89] The interplay between humanitarian and human rights law is such that in some cases both legal regimes will apply simultaneously, with determinations on the exact nature of their relationship having to be made on a case-by-case basis depending on the circumstances at hand.[90] The interface of humanitarian and human rights law remains a complex issue that will undoubtedly evolve and be clarified going forward. The ICRC does not purport to describe or analyse possible interactions between every rule of IHL and human rights law. Generally, its approach is to assess the relationship on a case-by-case basis. When both IHL and human rights law regulate a particular issue, a comparison between their provisions may reveal certain differences. Where that happens, it is necessary to determine whether the difference amounts to an actual conflict between the norms in question. If there is no conflict, the ICRC has elsewhere sought to interpret the different norms with a view to harmonization.[91] Where there is a real conflict between the respective norms, resort must be had to a principle of conflict resolution such as *lex specialis derogat legi generali*, by which a more specific legal norm takes precedence over a more general one.

Law of the sea

41. These Guidelines address how IHL rules apply to the protection of the natural environment in situations of armed conflict. They do not consider the international law of armed conflict applicable at sea or the law of the sea more generally, which must be taken into account as appropriate. Indeed, the rules of IHL applicable in land warfare and

John H. Knox, UN Doc. A/HRC/22/43, 24 December 2012; Human Rights Council, Res. 25/21, Human rights and the environment, 28 March 2014; Human Rights Council, Res. 28/11, Human rights and the environment, 26 March 2015; Human Rights Council, Res. 31/8, Human rights and the environment, 23 March 2016; Human Rights Council, Res. 34/20, Human rights and the environment, 24 March 2017; Human Rights Council, Res. 37/8, Human rights and the environment, 22 March 2018. Other special rapporteurs have addressed issues related to the environment and armed conflict. Regarding the impact of armed conflict on exposure to toxic and dangerous products and wastes, see e.g. Human Rights Council, *Adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights: Report of the Special Rapporteur, Okechukwu Ibeanu*, UN Doc. A/HRC/5/5, 5 May 2007; Human Rights Council, *Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes*, UN Doc. A/HRC/33/41, 2 August 2016; and Human Rights Council, *Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes*, UN Doc. A/HRC/36/41, 20 July 2017.

[88] Human Rights Council, *Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, UN Doc. A/HRC/37/59, 24 January 2018.

[89] See e.g. ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 25; ICJ, *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, Advisory Opinion, 9 July 2004, para. 106; and ICJ, *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo* v. *Uganda)*, Judgment, 19 December 2005, para. 216.

[90] For a fuller overview of the ICRC's approach to the relationship between IHL and international human rights law, see ICRC, *Commentary on the Third Geneva Convention: Convention (III) relative to the Treatment of Prisoners of War*, ICRC, Geneva/Cambridge University Press, Cambridge, 2020, paras 99–105. The interplay between IHL and international human rights law, and in particular whether, and if so to what extent, international human rights law remains relevant to military operations conducted in armed conflict, is a matter of controversy among States. For some recent statements in this regard, see France, *Commentaires du Gouvernement français à propos du projet d'Observation générale n° 36 sur l'article 6 du Pacte international relatif aux droits civils et politiques, concernant le droit à la vie*, 2017, paras 38–39; Germany, *Submission from Germany on the draft General Comment on Article 6 of the International Covenant on Civil and Political Rights – Right to Life*, 2017, para. 23; Russian Federation, *Preliminary comments on Draft General Comment No. 36 on Article 6 (right to life) of the International Covenant on Civil and Political Rights*, 2017, para. 39; Switzerland, *Commentaires de la Suisse, Projet d'observation générale n° 36 du Comité des droits de l'homme sur l'art. 6 du Pacte international relatif aux droits civils et politiques (droit à la vie)*, 2017, para. 13; United Kingdom, *Comments of the Government of the United Kingdom of Great Britain and Northern Ireland on Human Rights Committee Draft General Comment No. 36 on Article 6 of the International Covenant on Civil and Political Rights, on the right to life*, 2017, paras 12 and 33; and United States, *Observations of the United States of America on the Human Rights Committee's Draft General Comment No. 36 on Article 6 – Right to Life*, 2017, paras 16–20. In addition, when addressing questions of interplay between IHL and international human rights law, general differences between the two bodies of law must be borne in mind. These are notably the question whether and to what extent international human rights law binds non-state armed groups; the extraterritorial applicability of international human rights law; and the possibility of derogating from some human rights obligations in the event of an emergency. For a further discussion of the applicability of human rights law to non-state armed groups, see ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts: Recommitting to Protection in Armed Conflict on the 70th Anniversary of the Geneva Conventions*, ICRC, Geneva, 2019, pp. 53–54.

[91] See ICRC, *Commentary on the Third Geneva Convention*, 2020, para. 103.

those applicable in naval warfare are not always identical, and the Guidelines cannot always be applied automatically to the conduct of naval operations.[92]

[92] However, the 1994 *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* has been referenced when considered useful to provide further clarity on the interpretation of the rules, and as it was considered in the assessment of the customary nature of rules that apply to all types of warfare: Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Introduction, p. xxxvi.

PART I: SPECIFIC PROTECTION OF THE NATURAL ENVIRONMENT UNDER INTERNATIONAL HUMANITARIAN LAW

Rule 1 – Due regard for the natural environment in military operations

Methods and means of warfare must be employed with due regard to the protection and preservation of the natural environment.

Commentary

42. This rule has been established as a norm of customary international law applicable in international, and arguably also in non-international, armed conflicts.[93] The general obligation of due regard for the natural environment reflects the international community's recognition of the need to provide protection to the natural environment as such.[94] This rule is based on this general recognition, as well as on practice regarding the protection of the natural environment in particular when employing methods and means of warfare in armed conflict.[95]

43. The value of this rule is to affirm that anyone employing methods or means of warfare must consider the protection and preservation of the natural environment when doing so. Too frequently, the natural environment is a forgotten victim in contemporary armed conflicts, and so while general, the rule's hortatory affirmation that the natural environment continues to need protection and preservation during such times is an important starting point and a necessary reminder to belligerents.

44. In practical terms, this general standard of due regard is operationalized in IHL most importantly in two further obligations with which parties to an armed conflict must also comply. First, in the conduct of military operations, "constant care" must be taken to spare the civilian population, civilians and civilian objects.[96] This includes the

[93] See *ibid.*, Rule 44 and commentary, p. 147: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44 and related practice.

[94] The extensive development of international law in regard to protecting the natural environment over the last few decades has been motivated by a recognition of the role humankind has played in its dangerous degradation. The ICJ has held that the protection of the natural environment is an "essential interest" that could justify a State's invocation of the doctrine of "necessity" to renege from other international obligations: ICJ, *Gabčíkovo-Nagymaros Project (Hungary* v. *Slovakia)*, Judgment, 25 September 1997, para. 53. See also ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 29: "The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment."; UN General Assembly, Res. 37/7, World Charter for Nature, 28 October 1982, Preamble: "Man can alter nature and exhaust natural resources by his action or its consequences and, therefore, must fully recognize the urgency of maintaining the stability and quality of nature and of conserving natural resources."; and UN General Assembly, *Report of the UN Conference on Environment and Development (Rio de Janeiro, 3–14 June 1992)*, Annex I: Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I), 12 August 1992, Principle 2. For expressions of the international community's concern specifically regarding the damage caused to the natural environment in armed conflict, see fn. 5 above.

[95] The obligation of due regard in the context of the use of methods and means of warfare or, more broadly, in military operations is reflected, for example, in Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 15, para. 44; African Convention on the Conservation of Nature and Natural Resources (2003), Art. XV; IUCN, Draft International Covenant on Environment and Development (1995), Art. 32(1); Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 5.50; Côte d'Ivoire, *Droit de la guerre : Manuel d'instruction*, Livre III, Tome 1, p. 35; ; Greece, Statement before the Sixth Committee of the UN General Assembly, 74th session, Agenda item 79, 31 October 2019; Netherlands, *Humanitair Oorlogsrecht: Handleiding*, 2005, para. 0465; Republic of Korea, *Operational Law Manual*, 1996, p. 126; United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, paras 12.24, 13.30 and 15.20; United States, *The Commander's Handbook on the Law of Naval Operations*, 2007, para. 8.4; ICRC Study on Customary International Humanitarian Law, *Report on the Practice of Colombia*, 1998, Chap. 4.4; ICRC Study on Customary International Humanitarian Law, *Report on the Practice of the Islamic Republic of Iran*, 1997, Chap. 4.4; and ICRC Study on Customary International Humanitarian Law, *Report on the Practice of Kuwait*, 1997, Chap. 4.4. See also HPCR, *Manual on International Law Applicable to Air and Missile Warfare*, Rule 89, p. 250.

[96] See Rule 8 of the present Guidelines. The obligation of constant care is set out in Additional Protocol I, Art. 57(1), and in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 15 and commentary, pp. 51–55: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15. Regarding the constant care obligation embodied in the principle of precautions, see J.F. Quéguiner, "Precautions under the law governing the conduct of hostilities", *International Review of the Red Cross*, Vol. 88, No. 864, December 2006, pp. 793–821. For a discussion of the differences between the obligations of constant care and of due regard, see Hulme, "Taking care to protect the environment against damage: A meaningless obligation?", pp. 675–691. Further, on the notion of due regard, see D. Fleck, "Legal protection of the environment: The double challenge of non-international armed conflict and post-conflict peacebuilding", in C. Stahn, J. Iverson and J.S. Easterday (eds),

natural environment, which is by default civilian in character.[97] Second, all feasible precautions must be taken to avoid, and in any event to minimize, incidental damage to the natural environment. In this respect, a lack of scientific certainty as to the effects on the environment of certain military operations does not absolve a party to the conflict from taking such precautions.[98] These obligations require parties to conflict to take steps to avoid or minimize environmental damage. For example, those participating in military operations must take into account the possible negative implications for the natural environment arising from, among other things, the weapons employed[99] and the type of target selected.[100] They consequently must consider the specificities of the battlefield terrain in which they are operating. These obligations are therefore particularly (though not exclusively) relevant for military leaders responsible for operational planning.[101]

45. Beyond the operationalization of the due regard standard through other legal obligations that protect the natural environment, those employing methods or means of warfare may choose to demonstrate due regard for the protection and preservation of the natural environment by additional actions undertaken as a matter of policy rather than law. Such actions could include, for example, introducing measures to reduce the carbon footprint of warfare.[102]

46. This rule refers to both the protection and the preservation of the natural environment. Under IHL, obligations of protection are obligations of conduct. They require parties to exercise due diligence in the prevention of harm.[103] In popular usage, "preservation" refers to the maintenance of something in its original or existing state.[104] This notion of "preservation" is complementary to "protection", and there is no strong demarcation between the two terms for the purpose of interpreting this rule. The maintenance of the natural environment in its existing state will necessarily involve exercising due diligence in preventing harm to it, and consequently, in the ICRC's view, the nuance in meaning between "protection" and "preservation" does not change the practical implications for parties to armed conflict in their interpretation of this obligation. The term "preservation" is particularly common, however, in the context of the marine environment.[105]

Environmental Protection and Transitions from Conflict to Peace: Clarifying Norms, Principles, and Practices, Oxford University Press, Oxford, 2017, pp. 207–211.

[97] Regarding the civilian character of the natural environment, see paras 18–21 of the present Guidelines.

[98] For a further discussion, see para. 124 of the present Guidelines.

[99] Regarding the protection afforded to the natural environment by rules on specific weapons, see Rules 19–25 of the present Guidelines. For an example of the prohibition of the use of weapons damaging the natural environment, see Republic of Korea, *Operational Law Manual*, 1996, p. 129.

[100] Regarding the protection afforded to the natural environment by the principles of distinction, proportionality and precautions, see Rules 5–9 of the present Guidelines. See also Netherlands, *Humanitair Oorlogsrecht: Handleiding*, 2005, para. 0465: "In addition to the chosen method or means, the type of target attacked can also lead to environmental changes. An attack on a factory or laboratory where chemical, biological or nuclear products are developed or made may have major consequences for the natural environment."

[101] See e.g. Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 5.50, which states: "Those responsible for planning and conducting military operations have a duty to ensure that the natural environment is protected." NATO doctrine also provides a number of guidelines for commanders regarding environmental considerations in NATO-led military activities, including that commanders at all levels should "consider environmental impacts in decision making": NATO, STANAG 7141, *Joint NATO Doctrine for Environmental Protection During NATO-Led Military Activities*, AJEPP-4, Edition B Version 1, NATO Standardization Office, March 2018, pp. 2-1–2-4 and 4-1: https://nso.nato.int/nso/zPublic/ap/PROM/AJEPP-4%20EDB%20V1%20E.pdf.

[102] For example, in NATO military operations, an environmental protection officer is responsible for monitoring and identifying potential sources of undesirable air emissions, as well as proposing mitigating measures to reduce them; see NATO, STANAG 2582, *Environmental Protection Best Practices and Standards for Military Camps in NATO Operations*, AJEPP-2, Edition A Version 2, NATO Standardization Office, November 2018, p. G-1.

[103] More generally on the obligation to protect under IHL, see ICRC, *Commentary on the First Geneva Convention: Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field*, ICRC, Geneva/Cambridge University Press, Cambridge, 2016, pp. 484–487, paras 1360–1368 and fn. 84. In the field of environmental law, Hulme explains that "the notion of environmental 'protection' tends to be an umbrella notion for the wide range of environmentally beneficial obligations that states must undertake": Hulme, "Taking care to protect the environment against damage: A meaningless obligation?", p. 680. For a juxtaposition of the notion of protection under environmental law and of the notion of protection of the natural environment under IHL, see *ibid.*, pp. 680–681.

[104] See definition of "preserve" in A. Stevenson and M. Waite (eds), *Concise Oxford English Dictionary*, 12th ed., Oxford University Press, Oxford, 2011, p. 1135.

[105] See e.g. UNCLOS (1982), Art. 192; Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 14, paras 34 and 35; and United States, *The Commander's Handbook on the Law of Naval Operations*, 2007, para. 8.4.

Rule 2 – Prohibition of widespread, long-term and severe damage to the natural environment

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

Commentary

47. This rule has been established as a norm of customary international law applicable in international, and arguably also in non-international, armed conflicts.[106] The wording of the present rule reflects the obligations embodied in Articles 35(3) and 55(1) of the 1977 Additional Protocol I.

48. It appears that the United States is a "persistent objector" to the customary rule,[107] and France, the United Kingdom and the United States are persistent objectors with regard to the application of the customary rule to the use of nuclear weapons.[108] It should be noted that there is a certain amount of practice contrary to this rule,[109] and there are diverging views on its customary nature. Some view that, because of the objection of specially affected States, it has not emerged as a rule of customary international law in general and/or with regard to the use of nuclear weapons.[110] In this respect, the ICRC Study on Customary International Humanitarian Law acknowledges the role of "States whose interests are specially affected", noting that who is "specially affected" will vary according to circumstances, and reflects the contribution of such States.[111] Debates are ongoing regarding the notion of "specially affected" States.[112]

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[106] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, first sentence of Rule 45, p. 151: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45 and related practice.

[107] It should also be noted that it has been reported that "Israel does not find the two provisions on the protection of the natural environment [in Additional Protocol I] to be customary in character": Schmitt/Merriam, "The tyranny of context: Israeli targeting practices in legal perspective", p. 98. See also Israel, Statement before the Sixth Committee of the UN General Assembly, 70th session, Agenda item 83, 11 November 2015. See, further, Israel, *ILC Draft Conclusions on Identification of Customary International Law – Israel's Comments and Observations*, 70th session of the International Law Commission, 2018, noting that it "is difficult to recognize the exact moment of crystallization of a rule, because the process of formation is not clearly defined and delineated".

[108] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 151: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45.

[109] *Ibid.*, pp. 153–155.

[110] See e.g. Bellinger/Haynes, "A US Government response to the International Committee of the Red Cross Study on Customary International Humanitarian Law", pp. 455–460, which notes, among other things:

> In addition to maintaining that Articles 35(3) and 55 are not customary international law with regard to the use of weapons generally, specially affected States possessing nuclear weapon capabilities have asserted repeatedly that these articles do not apply to the use of nuclear weapons. For instance, certain specially affected States such as the United States, the United Kingdom, Russia, and France so argued in submissions to the International Court of Justice ('ICJ').

See also Y. Dinstein, "The ICRC Customary International Humanitarian Law Study", *Israel Yearbook on Human Rights*, Vol. 36, 2006, pp. 1–15; K. Hulme, "Natural environment", in E. Wilmshurst and S. Breau (eds), *Perspectives on the ICRC Study on Customary International Humanitarian Law*, Cambridge University Press, Cambridge, 2007, pp. 232–233; and Y. Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, 3rd ed., Cambridge University Press, Cambridge, 2016, pp. 238–239. For a response to the comments of the United States, see J.M. Henckaerts, "Customary International Humanitarian Law: A response to US Comments", *International Review of the Red Cross*, Vol. 89, No. 866, June 2007, pp. 473–488. See also J.M. Henckaerts, "The ICRC Customary International Humanitarian Law Study: A rejoinder to Professor Dinstein", *Israel Yearbook on Human Rights*, Vol. 37, 2007, pp. 259–270. For practice supportive of the customary nature of this rule, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, pp. 152–153: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45.

[111] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Introduction, pp. xliv–xlv: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_cha_chapterin_in; and *ibid.*, commentary on Rule 45, pp. 154–155: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45.

[112] In the final conclusions of its study on the identification of customary international law, the ILC does not mention the notion of "specially affected States", given diverging views, but it is addressed in the commentary on Conclusion 8 ("The practice must be general"), which notes:

> [I]n assessing generality [of practice], an indispensable factor to be taken into account is the extent to which those States that are particularly involved in the relevant activity or are most likely to be concerned with the alleged rule ("specially affected States") have participated in the practice. While in many cases all or virtually all States will be equally affected, it would clearly be impractical to determine, for example, the existence and content of a rule of customary international law relating to navigation in maritime zones without taking into account the practice of relevant coastal States and flag States, or the existence and content of a rule on foreign investment without evaluating the practice of the capital-exporting States as well as that of the States in which investment is made. It should be

Absolute prohibition

49. The prohibition of "widespread, long-term and severe" damage to the natural environment is a "powerful constraint",[113] providing specific and direct protection to the natural environment, in addition to the protection afforded by more general IHL provisions. Even in cases where objects forming part of the natural environment could otherwise be targeted lawfully as military objectives, or could otherwise incur damage arising from a lawful application of the principle of proportionality, this rule establishes an "absolute ceiling of permissible destruction"[114] that prohibits all widespread, long-term and severe damage to the natural environment regardless of considerations of military necessity or proportionality.[115] It is for this reason that a high threshold of damage is required to trigger this prohibition.[116]

Widespread, long-term and severe

50. Damage to the natural environment is prohibited when it is intended, or may be expected, to be "widespread, long-term and severe". These three conditions are cumulative,[117] meaning that each must be present to fulfil the threshold of harm. This establishes a high threshold against which the damage intended or expected must be assessed.[118] For example, the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia opined that on the basis of information in its possession at the time of drafting its 2000 report, the amount of which was hampered by "a lack of alternative and corroborated sources", the damage to the natural environment caused by the NATO bombing campaign in Kosovo did not reach the threshold of widespread, long-term and severe.[119] This damage was reported to have included pollution at a number of sites which was "serious" and "pose[d] a threat to human health" but did not affect the Balkans region "as a whole".[120] The Eritrea-Ethiopia Claims Commission similarly stated, regarding Ethiopia's claim for damages for the destruction of gum and resin plants, loss of trees and seedlings and damage to terraces that occurred during the 1998–2000 armed conflict with Eritrea, that the allegations and evidence of destruction fell well below the threshold of widespread, long-term and severe.[121]

made clear, however, that the term "specially affected States" should not be taken to refer to the relative power of States.

UN General Assembly, *Report of the International Law Commission: Seventieth session (30 April–1 June and 2 July–10 August 2018)*, UN Doc. A/73/10, 2018, pp. 136–137. For discussions during the drafting process, see ILC, *Second report on identification of customary international law by Michael Wood, Special Rapporteur*, UN Doc. A/CN.4/672, 22 May 2014, pp. 36–37 and 38–40;and ILC, *Fifth report on identification of customary international law by Michael Wood, Special Rapporteur*, UN Doc. A/CN.4/717, 14 March 2018, pp. 29 and 31. See also the views of certain States, submitted at the 70th session of the ILC in 2018, raising concerns about how the ILC addressed the issue of specially affected States: China, *ILC Draft Conclusions on Identification of Customary International Law – Comments of the People's Republic of China*, p. 2; Israel, *ILC Draft Conclusions on Identification of Customary International Law – Israel's Comments and Observations*, pp. 9–11; Netherlands, *ILC Draft Conclusions on Identification of Customary International Law – Comments and Observations by the Kingdom of the Netherlands*, pp. 2–3, paras 10–11; and United States, *Comments from the United States on the International Law Commission's Draft Conclusions on the Identification of Customary International Law as Adopted by the Commission in 2016 on First Reading*, pp. 13–14.

[113] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 31.

[114] United States Army, *Operational Law Handbook*, 2015, p. 333.

[115] R. Desgagné, "The prevention of environmental damage in time of armed conflict: Proportionality and precautionary measures", *Yearbook of International Humanitarian Law*, Vol. 3, December 2000, p. 111. Separately, within the field of international criminal law, Article 8(2)(b)(iv) of the 1998 Rome Statute of the International Criminal Court (ICC Statute) identifies the war crime of "[i]ntentionally launching an attack in the knowledge that such an attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated". For a further discussion of this threshold, see Rule 28 of the present Guidelines, fn. 651.

[116] For views that the threshold is too high, see e.g. Hulme, *War Torn Environment*, p. 292; and Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", p. 576.

[117] By contrast, in certain treaties the conditions are not cumulative: see e.g. ENMOD Convention (1976), Art. 1(1); and African Convention on the Conservation of Nature and Natural Resources (2003), Art. XV(1)(B). In the context of the ILC's work on the protection of the natural environment in relation to armed conflicts, El Salvador noted that the Draft Principles should refer to the threshold in a non-cumulative manner: El Salvador, Statements before the Sixth Committee of the UN General Assembly, 71st session, Agenda item 78, 1 November 2016 and 72nd session, Agenda item 81, 1 November 2017.

[118] It must be borne in mind that even where a method or means of warfare is not prohibited by this rule because this high threshold of intended or expected damage is not met, the use of such a method or means may nevertheless be prohibited by other rules of IHL protecting the natural environment, as set out in Parts II and III of the present Guidelines.

[119] ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, para. 17.

[120] *Ibid.*, para. 16.

[121] Eritrea-Ethiopia Claims Commission, *Ethiopia's Central Front Claim*, Partial Award, 2003, para. 100. See also Eritrea-Ethiopia Claims Commission, *Ethiopia's Damages Claims*, Final Award, 2009, paras 421–425.

51. Although the three terms "widespread", "long-term" and "severe" are used in Additional Protocol I, they are not defined in the treaty, its commentaries or its negotiating history. However, there are a number of elements that can generally serve to inform the meaning of these terms.

52. A first factor to consider is the historical backdrop of the environmental provisions of Additional Protocol I. As these were being negotiated, States had recently completed negotiations on the ENMOD Convention in 1976. Although the ENMOD Convention used similar – but non-cumulative – terms (i.e. "widespread, long-lasting *or* severe" (emphasis added)), the interpretations given to those terms were only for the purposes of that treaty and without prejudice to the interpretations of the same or similar terms in other international agreements.[122] During the negotiation of Additional Protocol I, it was also the understanding of a number of States that the interpretation of the Protocol's terms was not the same as for that of the ENMOD Convention.[123] However, little clarity was provided on how they differ, with delegations simply reiterating that these terms have different scopes and that the State's understanding was without prejudice to their position on the ENMOD Convention. This situation, in which some States consider similar terms to have different meanings in different treaties, can be explained by the very different scopes and objectives of these instruments related to environmental protection.[124] The ENMOD Convention prohibits damage meeting the threshold if such damage results from the military or hostile use of *environmental modification techniques*,[125] which require a deliberate manipulation of natural processes in the territory of a State Party.[126] For its part, Additional Protocol I protects the natural environment against damage caused by *any method or means of warfare*, including incidental harm, reaching the required threshold.[127] Accordingly, the ENMOD Convention requires deliberate behaviour, while Additional Protocol I also prohibits unintentional damage. A related but separate point is the cumulative nature of the prohibition contained in Additional Protocol I as compared with the disjunctive threshold in the ENMOD Convention. The establishment of a cumulative threshold in Additional Protocol I, which is thus higher than the ENMOD Convention's disjunctive threshold, may be explained by the fact that the Protocol prohibits damage resulting from any methods or means of warfare – whether deliberate or unintentional – while the ENMOD Convention only prohibits intentional damage. This may also be explained by the fact that all widespread, long-term and severe damage to the natural environment is prohibited regardless of considerations of military necessity or proportionality.

53. Beyond this acknowledgement that it cannot necessarily be concluded that the ENMOD Convention and Additional Protocol I thresholds are the same, the official records of the 1974–1977 Diplomatic Conference do not adopt a position on the interpretation of the individual terms and *how* these differ from the ENMOD terms, with the exception of the views of some States on the meaning of "long-term". Limited further guidance can be drawn from the use of these terms in subsequent international agreements and other practice. Since the adoption of Additional Protocol I, the "widespread, long-term and severe" threshold has been included in other international agreements, but those treaties and their negotiating history do not reveal an official position on the meaning of the terms, except that they are based on Additional Protocol I.[128] Notably, a commentary on the 1998 ICC Statute recommends adopting an analogous interpretation of the ENMOD terms for the purposes of the Statute.[129] In most cases, the Additional

[122] The drafters of the 1976 ENMOD Convention adopted "Understandings", which are not part of the Convention but are part of the negotiating record and were included in UN General Assembly, *Report of the Conference of the Committee on Disarmament*, Vol. I, *General Assembly Official Records: Thirty-first session*, Supplement No. 27 (A/31/27), 1976, p. 91.

[123] See e.g. the statements and explanations of the votes of Argentina, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. VI, CDDH/SR.39, 25 May 1977, p. 113; Egypt, *ibid.*, p. 114; Italy, *ibid.*, CDDH/SR.42, 27 May 1977, para. 21; Mexico, *ibid.*, CDDH/SR.39, 25 May 1977, para. 49; Peru, *ibid.*, para. 53; and Venezuela, *ibid.*, p. 118.

[124] See also M. Bothe, "The protection of the environment in times of armed conflict: Legal rules, uncertainty, deficiencies and possible developments", in ICRC, *Meeting of Experts on the Protection of the Environment in Time of Armed Conflict: Report on the Work of the Meeting*, ICRC, Geneva, 1992, Annex 3, p. 7; and T. Carson, "Advancing the legal protection of the environment in relation to armed conflict: Protocol I's threshold of impermissible environmental damage and alternatives", *Nordic Journal of International Law*, Vol. 82, No. 1, 2013, p. 90.

[125] For an explanation of the term "environmental modification techniques", see the commentary on Rule 3.B of the present Guidelines.

[126] See ENMOD Convention (1976), Arts 1 and 2.

[127] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 414–416, paras 1450–1452.

[128] See e.g. CCW (1980), Preamble, and ICC Statute (1998), Art. 8(2)(b)(iv). See also O. Triffterer and K. Ambos (eds), *The Rome Statute of the International Criminal Court: A Commentary*, 3rd ed., Hart, Oxford, 2016., Art. 8(2)(b)(iv), para. 253. See also the statement by Morocco during the CCW preparatory conference, UN Doc. A/CONF.95/WG/L.7, September 1979:

> [T]he title of the Preparatory Conference does not adequately reflect the profound changes that had taken place in the law relating to armed conflicts since the adoption, in 1977, by the Diplomatic Conference on the Reaffirmation and Development on IHL applicable in Armed Conflicts of the first Additional Protocol to the 1949 Geneva Conventions. Indeed, while the reference to the two traditional concepts of "unnecessary suffering" – now called "excessively injurious" effects – and "indiscriminate" weapons is to be welcomed, it is regrettable that no account is taken of ecological considerations, whereas articles 35 and 55 of the first Additional Protocol attached special importance to the protection of the environment.

[129] Triffterer/Ambos (eds), *The Rome Statute of the International Criminal Court: A Commentary*, Art. 8(2)(b)(iv), para. 253.

Protocol I threshold is restated in State documents, legislation and military manuals without further explanation.[130] However, a number of military manuals refer to only one or two of the three required components and/or to the threshold in the disjunctive ("or"), that is, in a non-cumulative manner.[131] One manual provides that the prohibition of causing an unlawful level of environmental damage covers "damage to the natural environment [that] significantly exceeds normal combat damage".[132]

54. What is certain is that in assessing the degree to which damage is widespread, long-term and severe, contemporary (i.e. current) knowledge about the effects of harm on the natural environment must be taken into account.[133] At the time the Additional Protocols were being negotiated, there were few well-known examples of severe damage caused to the natural environment by armed conflict (apart from, mainly, the Vietnam War), as well as a limited knowledge of the full extent of the harm caused by a particular use of a method or means of warfare. Since then, particularly with the evolution of international environmental law, there has been a growing understanding and recognition of the need to protect the natural environment and limit damage to it. There is also increasing and more sophisticated knowledge of and scientific data on the connectedness and interrelationships between the different parts of the natural environment, as well as of the interdependent nature of environmental processes. For instance, marshlands in southern Iraq were devastated as a result of drainage works and damming, which in turn led to massive loss and environmental degradation, such as desertification and depletion of biodiversity, including the extinction of certain species.[134] There is also more knowledge of the effects of the harm caused, including cumulative and indirect effects. When assessing whether damage meets the widespread, long-term and severe threshold, cumulative effects are another factor to consider in addition to individual effects; for example, in considering whether the oil spills during the 1990–1991 Gulf War met the threshold, these separate events were considered as a single operation.[135] Finally, as climate risks and shocks increase, the natural environment, particularly where it is already degraded, may become less capable of absorbing the effects of this damage.[136]

55. The above factors may lead to a finding that the previous use of a given method or means of warfare had consequences not initially expected and that, were it used today, could meet the required threshold of harm. Considering the difficulty of knowing in advance what the scope of effects of acts will be, there is a need to limit environmental damage as far as possible.[137] To comply with this rule, those employing methods or means of warfare must inform themselves of the potential detrimental effects of their planned actions and refrain from those intended or expected to cause widespread, long-term and severe damage.[138] Beyond these general elements, the following specific elements should inform a contemporary understanding of the "widespread, long-term and severe" threshold.[139]

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[130] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. II, Part I, practice related to Rule 45 (Causing Serious Damage to the Natural Environment), pp. 876–903, paras 145–289: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule45.

[131] See e.g. the military manuals of South Africa, Switzerland and Ukraine cited in *ibid.*, p. 882, para. 182: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule45. See also Czech Republic, *Field Regulations*, 1997, Article 57.

[132] Germany, *Law of Armed Conflict – Manual*, 2013, para. 435. See also Germany, *Humanitarian Law in Armed Conflicts – Manual*, 1992, para. 403, which previously summarized the terms "widespread, long-term and severe" as "a major interference with human life or natural resources which considerably exceeds the battlefield damage to be regularly expected in a war".

[133] Bothe, "The protection of the environment in times of armed conflict: Legal rules, uncertainty, deficiencies and possible developments", pp. 6–7; Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 33.

[134] UNEP, *UNEP in Iraq: Post-Conflict Assessment, Clean-up and Reconstruction*, UNEP, Nairobi, 2007, pp. 17–18.

[135] Schmitt, "Green war", pp. 83–84. See also the discussion of factors to consider when assessing whether damage is widespread, para. 57 and fn. 147 of the present Guidelines.

[136] Regarding the link between armed conflict and its effects on environmental degradation, as well as on how conflict influences vulnerability to climate change impacts, see ICRC, *When Rain Turns to Dust*; W.N. Adger *et al.*, "Human security", in C.B. Field *et al.* (eds), *Climate Change 2014: Impacts, Adaptation, and Vulnerability.* Part A: *Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, 2014, pp. 774 and 758.

[137] ICRC, *Protection of the environment in time of armed conflict*, Report submitted to the 48th session of the UN General Assembly, reproduced in UN General Assembly, *Report of the UN Secretary-General on the protection of the environment in times of armed conflict*, 1993, para. 34.

[138] This is in line with the obligation of due regard to the protection and preservation of the natural environment. See, in particular, Rules 1 and 8 of the present Guidelines. See also Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 158: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45; Bothe, "The protection of the environment in times of armed conflict: Legal rules, uncertainty, deficiencies and possible developments", pp. 7–8; and Carson, "Advancing the legal protection of the environment in relation to armed conflict: Protocol I's threshold of impermissible environmental damage and alternatives", p. 96.

[139] Alternative models of interpretation of this threshold have also been elaborated; see e.g. the model put forward in Hulme, *War Torn Environment*, pp. 292–299.

Widespread

56. The *travaux préparatoires* of Additional Protocol I do not reveal a definition of "widespread" beyond an understanding that the term contemplates the "scope or area affected".[140] In comparison, the term "widespread" as used in the ENMOD Convention is defined as "encompassing an area on the scale of several hundred square kilometres".[141] Although the understanding was that the terms used in the Protocol were not to be interpreted in the same way as the similar terms in the ENMOD Convention, the *travaux préparatoires* do not shed light on how the interpretations differ;[142] delegates discussed a higher standard for the "long-term" requirement, but such a discussion was not recorded for the "widespread" criterion. Some delegations referred to "the destruction of entire regions", citing examples of the damage caused in the Vietnam War to explain the rationale behind the provisions to protect the natural environment.[143] For instance, reference was made to the use of 90,000 tons of defoliants and plant-killers over an area of about 2.5 million hectares (25,000 sq km) in South Vietnam.[144] This provides an example of the magnitude of damage that formed the impetus for this prohibition and can thus inform the meaning of "widespread".

57. The "area affected" should be understood to be that where the damage to the environment is intended or may be expected to occur. It includes all damage that is reasonably foreseeable at the time of the use of the method or means of warfare, based on information available from all sources.[145] This includes damage caused directly by the method or means of warfare in the very geographical area where they are used, such as in the above Vietnam War example. The indirect effects (also sometimes referred to as "reverberating", "knock-on", "cascading" or "second, third or higher-order" effects) on the natural environment are equally relevant, provided that they are intended or may be expected. Such effects may be expected to spread or materialize beyond the geographical area where the method or means of warfare has been employed, in which case the entire area expected to be affected is relevant in assessing whether the damage is "widespread". For example, the damage caused during the 1990–1991 Gulf War extended far beyond the areas where the oil wells were actually burning, with significant emissions of sulfur dioxides, nitrous oxide and carbon dioxide and the deposit of soot on more than half of Kuwait (roughly 8,000 sq km); it has been noted that the widespread (and severe) test "would probably have been satisfied" if Additional Protocol I had applied to that conflict.[146] Damage to numerous smaller areas may also cumulatively qualify as "widespread".[147] This may be the case, for example, when the use of a method or means of warfare results in the contamination of underground water systems, which in turn contaminate natural springs in several different locations.

58. Moreover, contemporary knowledge of the effects of damage on the natural environment, including their transregional nature, can inform further interpretations of the "widespread" test. For example, it is now known that the extinction of a species living in a region – even under the ENMOD "scale of several hundred square kilometres" – can have significant repercussions on a particular ecosystem as well as on the population, with effects beyond this area. Indeed, while the area of the habitat of the species affected by the harm caused by the use of a method or means of warfare may be under the threshold of Additional Protocol I, the extinction of a species has global effects that go beyond that area.[148] Although the *travaux préparatoires* of Additional Protocol I do not provide

[140] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev.I, para. 27. For an analysis of the discussion in the *travaux préparatoires* on the definition of "widespread", see Hulme, *War Torn Environment*, pp. 91–93.

[141] UN General Assembly, *Report of the Conference of the Committee on Disarmament*, Vol. I, p. 91.

[142] For a further discussion, see para. 52 and references in fns 122 and 123 of the present Guidelines.

[143] See e.g. the statements of the Democratic Republic of Viet-Nam, Mongolia, Uganda and the Union of Soviet Socialist Republics at the 1974–1977 Diplomatic Conference: *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XIV, CDDH/III/SR.26, pp. 236–237, 240 and 246. See also Hulme, *War Torn Environment*, p. 92: "For example, in South Vietnam over five million acres (approximately 20,200 square kms) were sprayed with defoliants."

[144] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XIV, CDDH/III/SR.26, p. 237. See also Hulme, *War Torn Environment*, p. 92.

[145] See ICTY, *Galić case*, Trial Judgment, 2003, para. 58, in particular fn. 109. This was also pointed out by a number of States; see the declarations made upon ratification of Additional Protocol I by Algeria, Australia, Belgium, Canada, Germany, France, Ireland, Italy, the Netherlands, New Zealand, Spain and the United Kingdom: https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/vwTreatiesByCountry.xsp. For example, Australia declared that: "In relation to Articles 51 to 58 inclusive it is the understanding of Australia that military commanders and others responsible for planning, deciding upon, or executing attacks, necessarily have to reach their decisions on the basis of their assessment of the information from all sources, which is available to them at the relevant time."

[146] See e.g. United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, p. 76, para. 5.29.2, fn. 153.

[147] Hulme, *War Torn Environment*, p. 93, refers to examples where "the damage caused locally might appear relatively limited in size, but when added together these 'pockets' of harm may cumulatively add up to cover a large area" that might qualify as "widespread".

[148] Bothe, "The protection of the environment in times of armed conflict: Legal rules, uncertainty, deficiencies and possible developments", p. 7.

further clarity, this may be what was meant by "scope" when Committee III of the 1974–1977 Diplomatic Conference referred to "the scope or area affected" as the element that the qualifier "widespread" was intended to express.[149]

59. Beyond this, the definition of "widespread" remains vague. For example, when considering the Additional Protocol I threshold, the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia simply made reference to the UNEP Balkan Task Force's conclusion that the conflict had not "caused an environmental catastrophe affecting *the Balkans region as a whole*", before noting that it lacked additional corroborated sources regarding the extent of environmental contamination.[150]

60. Given this lack of clarity, UNEP has called for a clearer definition of "widespread" to be developed to improve the practical effectiveness of this legal protection.[151] It recommends that the precedent set by the ENMOD Convention – i.e. a scale of several hundred square kilometres – should serve as the minimum basis for the development of this definition. It should be noted, however, that the practical use and application of the ENMOD provisions have so far been limited.[152] Nonetheless, as the only existing legal definition of this term, using it as a starting point from which to consider the type of damage that would be covered avoids the arbitrary attribution of a threshold that has never been fixed.[153] A recent example suggests that in Additional Protocol I "widespread" "probably means several hundred square kilometres, as it does in ENMOD".[154] Taking into account the above factors, the meaning of the term "widespread" should be understood as referring to damage extending to "several hundred square kilometres".

Long-term

61. Traditionally, in the context of Additional Protocol I, "long-term" is understood to refer to decades, as compared with the ENMOD standard of "long-lasting", which is understood as "a period of months, or approximately a season".[155] According to the *travaux préparatoires* of Additional Protocol I, "long-term" refers to the "time or duration" of damage, and some representatives considered that this was to be measured in decades; some of these referred to 20 or 30 years "as being a minimum".[156]

62. Meanwhile, the Group "Biotope" noted that the damage contemplated "will have an effect for a significant period of time, perhaps for ten years or more" but that "it is impossible to say with certainty what period of time might be covered and for this reason, no time is specified".[157] One example notes that Additional Protocol I "prohibits ecological warfare", the effects of which "could be felt for 10 years or more".[158] Furthermore, while not specifically discussing Additional Protocol I's threshold, the UN secretary-general's 1972 report on napalm and other incendiary

[149] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27.

[150] ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, paras 15–17 (emphasis added). For the view that the damage caused in this context was indeed widespread given the pollution of the Danube river and the atmosphere above Yugoslavia, see Hulme, *War Torn Environment*, p. 194. See also Council of Europe, Parliamentary Assembly, *Environmental impact of the war in Yugoslavia on south-east Europe*, Report of the Committee on the Environment, Regional Planning and Local Authorities, Doc. 8925, 10 January 2001, paras 60–61; and Council of Europe, Parliamentary Assembly, Rec. 1495, Environmental impact of the war in Yugoslavia on South-East Europe, 24 January 2001, paras 1–2.

[151] UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 52.

[152] See Bothe/Partsch/Solf, *New Rules for Victims of Armed Conflicts*, commentary on Article 55 of Additional Protocol I, p. 386, which notes that the use of environmental modification techniques for hostile purposes does not play a major role in military planning. See also Schmitt, "Green war", pp. 84–85. See also Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, pp. 234–235; and C.R. Payne, "Protection of the natural environment", in B. Saul and D. Akande (eds), *The Oxford Guide to International Humanitarian Law*, Oxford University Press, Oxford, 2020, p. 224.

[153] For a similar line of argumentation, see Schmitt, "Green war", pp. 107–108:

> Since there is no indication of what was meant by the term "widespread" in the Protocol I drafting process, it makes sense to defer to its sole legal definition, that of ENMOD. Though ENMOD definitions were specifically said not to bind other agreements, this does not negate the logic of using them to minimize confusion if doing so makes sense contextually. Thus, as the [United States] Army [Operational Law Handbook] does, the new manual should describe the term as implying damage that extends to several hundred kilometers.

[154] United States Army, *Operational Law Handbook*, 1997, pp. 5–19. This has been reiterated in more recent editions of the Handbook, notably the 17th edition (2017), which notes that the Handbook is not an official representation of US policy regarding the binding application of various sources of law: pp. *ii* and 350. New Zealand, *Manual of Armed Forces Law: Law of Armed Conflict*, Vol. 4, 2017, p. 8-45, provides a similar indicative definition of the term in the context of attacks on the natural environment, when stating that "[w]idespread generally means encompassing an area on the scale of several hundred square kilometres".

[155] UN General Assembly, *Report of the Conference of the Committee on Disarmament*, Vol. I, p. 91.

[156] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27. In support of the view that "long-term" is measured in decades (20 or 30 years), see also Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 415–416, para. 1452; and Schmitt, "Green war", p. 107.

[157] *Report of the Chairman of the Group "Biotope"*, 11 March 1975, CDDH/III/GT/35, para. 5, reprinted in H.S. Levie, *Protection of War Victims: Protocol I to the 1949 Geneva Conventions*, Vol. 3, para. 6. See also *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev.1, para. 27.

[158] Belgium, *Cours pour conseillers en droit des conflits armés : Les lieux et biens protégés*, 2009, pp. 39–41.

weapons observed that the use of incendiary weapons on crops, forests and other features of the rural environment "may lead to irreversible ecological changes having grave long-term consequences".[159] At the opposite end of the spectrum, it is clear from the *travaux* that short-term damage to the natural environment of the kind resulting from artillery bombardment was not intended to be covered by this rule.[160] In this vein, the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia held that the notion of long-term damage "would need to be measured in *years* rather than months, and that as such, ordinary battlefield damage of the kind caused to France in World War I would not be covered".[161] Although not indicating a precise time scale, in reference to what was to become Article 55(1) of Additional Protocol I, the *travaux préparatoires* note that the damage intended to be covered is that which would be likely over a long term to prejudice the health or survival of the population, with temporary or short-term effects not intended to be covered.[162]

63. Based on this, "long-term" would cover damage somewhere between the range of that not considered to be short term or temporary, such as artillery bombardment, and that with impacts in the range of years (possibly a scale of 10 to 30 years). Ultimately, however, no official position was adopted on the meaning of "long-term" during the negotiation of Additional Protocol I, and beyond this, the definition remains vague.

64. If this rule is to provide protection in situations where the damage falls outside of the clearly accepted higher limits of the temporal threshold, additional precision on the interpretation of "long-term" is needed. To this end, UNEP recommends that the precedent set by the ENMOD Convention, namely a period of months, or approximately a season, should serve as a starting point for the development of a clearer definition of "long-term".[163] Although the understanding was that the ENMOD and Additional Protocol I terms did not have the same meaning, this can be explained given the very different scopes and aims of these instruments. Indeed, States negotiating the ENMOD Convention had hurricanes, tidal waves, earthquakes, rain and snow in mind, while those negotiating the Additional Protocols were thinking of damage resulting in the disruption of ecosystems.[164] By definition, these types of harm do not necessarily have the same time scales. Given that the provisions of Additional Protocol I aimed to cover damage or disruption to ecosystems on a large scale, it is likely that the threshold for damage of this type would only be met when its effects are felt or may be expected to be felt over a period of years and would have to be greater than only "a season". This being said, despite the understanding of some delegates that the timeframe covered was one of a decade or more (and is different to the ENMOD standard), there was no actual agreement by all delegates on what was required. As observed at the time the Additional Protocols were being negotiated, it may be difficult to say with certainty what period of time may be involved in a violation of this threshold.[165]

65. Damage not initially considered to fall under the "long-term" test could today be considered to satisfy it based on contemporary knowledge, particularly of the cumulative and indirect (or reverberating) effects. In line with this, 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 (including via bioaccumulation in organisms).[166] For instance, it is now known that serious environmental contaminants and hazardous substances can remain in the natural environment for lengthy periods of time and cause – and continue to cause – harm to species, including humans.

66. Thus, assessing the meaning of "long-term" should take into account the duration of the indirect (or foreseeable reverberating) effects of the use of a given method or means of warfare (not only its direct effects). In the case of Viet Nam, damage to human health is still present and may persist for generations to come.[167] Thus, the "long-term" test, even assessed against a duration of 30 years, could be met. An understanding of the damage covered by "long-term" should be informed by touchstones such as these.

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[159] UN General Assembly, *Report of the Secretary-General on napalm and other incendiary weapons and all aspects of their possible use*, UN Doc. A/8803, 9 October 1972, p. 51, para. 189.

[160] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27; *Report of the Chairman of the Group "Biotope"*, 11 March 1975, CDDH/III/GT/35, para. 5, reprinted in H.S. Levie, *Protection of War Victims: Protocol I to the 1949 Geneva Conventions*, Vol. 3, para. 6; Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 416–417, para. 1454.

[161] ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, para. 15 (emphasis added).

[162] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, paras 27 and 82. The *travaux préparatoires* further indicate that the term "health" was inserted in Article 55 of Additional Protocol I to cover actions that could be expected to cause severe effects that would have serious health problems, such as congenital defects: *ibid.*, para. 82.

[163] UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 52.

[164] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 416–417, para. 1454.

[165] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27.

[166] This factor is discussed in the context of this threshold in Hulme, *War Torn Environment*, p. 95.

[167] This element is discussed in *ibid.*, p. 95, and Bothe *et al.*, "International law protecting the environment during armed conflict: Gaps and opportunities", p. 576.

Severe

67. The *travaux préparatoires* of Additional Protocol I do not provide a definition of the term "severe" but do indicate that it refers to the "severity or prejudicial effect of the damage to the civilian population".[168] In comparison, the term "severe" as used in the ENMOD Convention is defined as "involving serious or significant disruption or harm to human life, natural and economic resources or other assets".[169] Although the understanding during the negotiation of Additional Protocol I was that the terms were not to be interpreted in the same way as the terms in ENMOD, the *travaux préparatoires* do not shed light on how the interpretation differs.[170] In addition, although a higher standard was discussed for the "long-term" requirement, this does not appear to be the case for the "severe" criterion.[171]

68. The various proposals made during the negotiation of Additional Protocol I provide some insight into States' views on the type of damage that should be covered. At the 1972 Conference of Government Experts on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, initial proposals focused on methods or means of warfare that "destroy the natural human environmental conditions" or that "upset the balance of the natural living and environmental conditions".[172] Similar proposals were made during the 1974–1977 Diplomatic Conference.[173] Ultimately, these proposals were not successful as there was recognition that environmental change or disturbances of the ecosystem might also occur on a low scale not intended to be covered by this prohibition.[174] Thus, proposals on damage disturbing the stability of the ecosystem were not included in the final treaty text as "an operative part of the standard", on the understanding that disturbance of ecological stability alone would not be sufficient to meet the agreed threshold.[175] Instead, agreement was reached on the standard of causing "widespread, long-term, and severe damage to the natural environment".[176] This discussion of disturbance to ecological stability during their drafting nevertheless indicates that an aim of the provisions of Additional Protocol I pertaining to the natural environment was to prevent damage of a nature to significantly disrupt an ecosystem.[177] As explained in the commentary on Article 35(3) of the Protocol, "ecological warfare", which "refers to the serious disruption of the natural equilibrium permitting life and the development of man and all living organisms", is the object of relevant provisions in Additional Protocol I (as compared with "geophysical war" covered by the ENMOD Convention).[178] At the opposite end of the spectrum, among the examples of damage that might be considered to fall below the required threshold of "severity", the *travaux préparatoires* refer to the cutting or destruction of trees and cratering as a result of normal artillery fire, as well as the flattening of a "clump of trees".[179] It was also generally considered that "battlefield damage incidental to conventional warfare would not normally be proscribed", except if such damage fulfils the understanding of "severe" (and of the other Additional Protocol I threshold criteria).[180]

69. With reference to Article 55(1), the provision itself and the *travaux préparatoires* also indicate that a factor to consider when assessing the severity of damage is prejudice caused to the health or survival of the population.[181] The type of damage this refers to is that which "would be likely to prejudice, over a long term, the continued survival of the

[168] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27.

[169] UN General Assembly, *Report of the Conference of the Committee on Disarmament*, Vol. I, p. 91.

[170] For a further discussion, see para. 52 and the references in fns 122 and 123 of the present Guidelines.

[171] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 27.

[172] See e.g. written proposals submitted at the Conference of Government Experts on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, Second session, 3 May–3 June 1972, *Report on the Work of the Conference*, Vol. II, CE/COM II/72 and CE/COM III/C 68-69, ICRC, Geneva, July 1972, pp. 47 and 63, respectively.

[173] See e.g. *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. III, CDDH/III/238, p. 157, and CDDH/III/222, p. 156.

[174] *Ibid.*, Vol. XV, CDDH/III/275, p. 359.

[175] *Ibid.*

[176] *Ibid.*, Vol. XV, CDDH/215/Rev. I, paras . 25–26. However, some States noted that they would have preferred a lower standard that would provide greater protection to the natural environment; see e.g. the statement of Hungary, *ibid.*, Vol. VI, CDDH/SR.42, p. 228. In the end, the adoption of this formula can be explained by a concern for coordination with the parallel ENMOD process; see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 413, para. 1448.

[177] See also e.g. the statements at the 1974–1977 Diplomatic Conference of Hungary, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. VI, CDDH/SR.42, p. 228; Union of Soviet Socialist Republics, Vol. XIV, CDDH/III/SR.27, para. 6, and CDDH/III/SR.38, para. 41; and Viet Nam, Vol. XIV, CDDH/III/SR.26, para. 15.

[178] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 420, para. 1462. See also the practice of some States cited in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. II, Part I, practice related to Rule 45, pp. 876–903: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule45, including Belgium, *Cours pour conseillers en droit des conflits armés : Les lieux et biens protégés*, 2009; Germany, *Law of Armed Conflict – Manual*, 2013, referring to "ecological war(fare)"; Armenia, *Penal Code*, 2003; Belarus, *Criminal Code*, 1999; Russian Federation, *Criminal Code*, 1996; and Viet Nam, *Penal Code*, 1999.

[179] See the statements of the United Kingdom, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XIV, CDDH/III/SR.38, para. 45, and Vol. XV, CDDH/III/275, p. 359.

[180] *Ibid.*, Vol. XV, CDDH/215/Rev. I, para. 27.

[181] *Ibid.*, paras 27 and 82.

population or would risk causing it major health problems".[182] Although human impact is the primary focus of Article 55(1), this is not to say that environmental damage must have an effect on the human population in order to qualify as severe. Rather, it indicates that factors such as inducing mutagenic effects in animal species in a way that could harm humans (if they were present in the environment), even unintentionally, can inform findings of severity.[183] As the present rule reflects the relevant obligations embodied in Additional Protocol I, "severe" in the context of Article 55(1) can be understood to refer primarily to damage prejudicing the health or survival of the population, while Article 35(3) can be understood to address ecological rather than human concerns.[184]

70. In further clarifying the kind of damage that is "severe", increased knowledge of effects should be considered. As a violation of this rule inevitably presupposes that there can be knowledge or an inference that a certain method or means of warfare *will* or *probably will* cause this type of damage, there is a need to understand which types of warfare will have such disastrous consequences.[185] Accordingly, in addition to those effects that *will* result in prohibited damage, parties must inform themselves as far as possible of the *potential* effects of the use of a certain method or means of warfare on the natural environment when assessing the severity of damage, including the potential effects of remnants of war,[186] and refrain from actions that may be expected to cause damage that is widespread, long term and severe.[187] This should include assessing the direct damage – either immediate or that may take a long time to manifest itself – resulting from the use of a given method or means of warfare. For instance, environmental damage leading to teratogenic, mutagenic and carcinogenic effects, such as those resulting from the defoliants used in the Vietnam War, may also meet the test of severity and should be considered when assessing potential effects.[188] As such, the prohibition of damage affecting the health or survival of the population in the long term provided in Article 55(1) of Additional Protocol I "means [that] persons, forests and plant cover, flora, fauna, air and water quality, etc. must be protected against, for example, genetic effects (congenital defects, deformities or degeneration)".[189] In addition to direct damage, an assessment should also consider the indirect effects resulting from the use of a given method or means of warfare. For example, the burning of the oil wells during the 1990–1991 Gulf War, which had indirect effects such as the huge emission of sulfur dioxides, nitrous oxide and carbon dioxide and the deposit of soot on more than half of Kuwait, has been cited as probably having satisfied the severe test.[190]

71. Any assessment of the meaning of "severe" must also consider the interdependency of the natural environment, as damage to one component (or "part") can have effects that extend to other components. In addition, "damage or even alteration to any part of the ecosystem can have severe repercussions for the civilian population",[191] which also evidences the interdependency of the natural environment and the health or survival of the population.[192] Further to this, the use of methods or means of warfare against certain parts of the natural environment, including endangered species or particularly delicate or sensitive ecosystems, will likely result in greater direct and indirect effects on the natural environment and the population than those that would result from the use of such methods

[182] *Ibid.* See also the statements of the Democratic Republic of Vietnam and Mongolia, which refer to the "mass extermination of the civilian population" and the deaths of two to three million people as examples of the type of damage covered by the prohibition: *ibid.*, Vol. XIV, CDDH/III/SR.26, paras 11–13 and 27. See also the statement of the Union of Soviet Socialist Republics: *ibid.*, Vol. XIV, CDDH/III/SR.27, para. 6.

[183] Hulme, *War Torn Environment*, pp. 96 and 98.

[184] The 1987 ICRC commentary on Article 35 of Additional Protocol I emphasizes that the terms "widespread", "long-term" and "severe" should be understood in the context of the specific provision under consideration, and accordingly "severe" for the purposes of Article 35 can be understood to address ecological rather than human concerns: Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 417–418, paras 1455–1456. For a further discussion of these disparate focuses of Articles 35 and 55 of Additional Protocol I, see paras 73–75 of the present Guidelines.

[185] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 158: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45.

[186] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 410–411 and 417–418, paras 1443 and 1455. See also Belgium, *Cours pour conseillers en droit des conflits armés : Les lieux et biens protégés*, 2009, pp. 38–40, stating that material remnants of war (mines, booby traps, bombs) can be included in the type of damage caused to the natural environment that would be prohibited if it affects the health or survival of the population in the long term as "[d]ispersed over large areas, these still cause losses among the civilian population ever year".

[187] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 158: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45; and Rules 1 and 8 of the present Guidelines.

[188] The delegates referred to congenital defects as an example of serious health problems envisaged: *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/215/Rev. I, para. 82. This factor is also discussed by Hulme in the context of the "severe" criterion: Hulme, *War Torn Environment*, pp. 96 and 98.

[189] Belgium, *Cours pour conseillers en droit des conflits armés : Les lieux et biens protégés*, 2009, pp. 38–40.

[190] United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 5.29.2, fn. 153.

[191] This reflects discussions in the Group "Biotope" at the 1974–1977 Diplomatic Conference, where it was proposed that the prohibited act was the "disturbance of the stability of the ecosystem": *Report of the Chairman of the Group "Biotope"*, 11 March 1975, CDDH/III/GT/35, para. 5, reprinted in H.S. Levie, *Protection of War Victims: Protocol I to the 1949 Geneva Conventions*, Vol. 3, para. 7.

[192] For example, the potential indirect effects of the destruction of a forest can include the loss of forest wildlife and biodiversity, soil erosion, flooding, poorer air and water quality and climate modification: Hulme, *War Torn Environment*, p. 44.

against other parts of the natural environment.[193] Thus, damage caused by the use of a given method or means of warfare against certain components could fulfil the "severity" threshold, while the use of the same against other components would not.

72. Considering the above elements, the threshold of "severe" should be understood to cover the disruption or damage to an ecosystem or harm to the health or survival of the population on a large scale, with normal damage caused by troop movements and artillery fire in conventional warfare generally falling outside the scope of this prohibition. Beyond this, the contours of the meaning of "severe", and the required scale of harm, remain vague and further precision is necessary. As with the terms "widespread" and "long-term", UNEP recommends that the precedent set by the ENMOD Convention – i.e. "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".[194] As the meaning of "severe" in the context of Articles 35(3) and 55(1) of Additional Protocol 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.[195] In addition, at least to the extent that effects on economic or other assets also result in disruption or damage to the ecosystem or harm to the health or survival of the population, they should also be considered when assessing the meaning of "severe".

Damage to the natural environment

73. As seen in the negotiating history of Additional Protocol I, delegates debated whether damage to the natural environment as such should be prohibited, or whether the prohibition should apply only to damage to the natural environment in so far as it prejudices the health or survival of the population.[196] These discussions resulted in the adoption of two distinct articles: Article 35(3), which makes no connection between damage to the natural environment and the health or survival of the population, and Article 55(1), which includes a reference to the health or survival of the population. Indeed, the *travaux préparatoires* indicate that, with a deliberately different emphasis than that of Article 35(3), the focus of Article 55(1) at the time of drafting was to ensure the health or survival of the population.[197] The *travaux* observe that "the prohibition contained in that article was linked to prejudice to the health or survival of the population".[198] Meanwhile, Article 35(3) was seen as having a wider scope, protecting the natural environment itself.[199] Notably, however, the *travaux* also indicate that the first sentence of Article 55 establishes a general norm, which is then specified in the second sentence, and furthermore observe that "[c]are must be taken to protect the natural environment against the sort of harm specified even if the health or the survival of the population is not prejudiced".[200] As the *travaux* go on to say, an example of this is environmental harm that meets the required threshold of harm but is in an unpopulated area.[201]

74. Regardless of the scope of the damage prohibited by Article 55(1), the combined effect of Articles 35(3) and 55(1) of Additional Protocol I is that they unequivocally prohibit the use of methods or means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment as such. This is

[193] Other examples that may meet the severity test are damage to "a particularly valuable, endangered or rare ecosystem" or to an especially delicate or sensitive ecosystem, such as deserts and the Antarctic. Damage to "sites of special scientific interest", "endangered species, or areas of natural heritage" could also result in a greater level of harm: Hulme, *War Torn Environment*, pp. 44–45 and 98.

[194] UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 52. See also Schmitt, "Green war", p. 108, noting that the ENMOD understanding of "severe" is more comprehensive, as it encompasses "health and survival" but also extends to "property", and that the extension of the ENMOD definition to inform the understanding of "severe" in Additional Protocol I "is consistent with Protocol I protections generally, and with the international law of armed conflict more broadly".

[195] For instance, Germany's 1992 military manual refers to "a major interference with human life or natural resources which considerably exceeds the battlefield damage to be regularly expected in a war": *Humanitarian Law in Armed Conflicts – Manual*, 1992, para. 403. According to its 2013 *Law of Armed Conflict – Manual*, para. 435, the "prohibition of environmental warfare" covers "damage to the natural environment [that] significantly exceeds normal combat damage".

[196] For more on this, see the discussion of the anthropocentric and intrinsic approaches to the protection of the natural environment in the Introduction, paras 19–21, as well as the discussion of the meaning of "severe" for the purposes of Articles 35(3) and 55(1), para. 69 and fn. 184 of the present Guidelines. See also Schmitt, "Green war", pp. 6–7 and 70–71.

[197] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 414–416, paras 1449–1453. See also *ibid.*, pp. 417–418, para. 1455.

[198] Report to the Third Committee on the Work of the Working Group, 3 April 1975, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/III/275, p. 360.

[199] *Ibid.*, p. 357; and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 415, para. 1449, and p. 420, para. 1462. See also e.g. United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 5.29.1: "Article 35 deals with direct protection of the environment whereas Article 55 tends more towards protecting the environment from the incidental effects of warfare, *especially if* it prejudices the health or survival of the civilian population" (emphasis added).

[200] Report to the Third Committee on the Work of the Working Group, 3 April 1975, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/III/275, p. 360.

[201] *Ibid.*

in keeping with the findings of the ICJ that "[t]aken together, these provisions embody a general obligation to protect the natural environment against widespread, long-term and severe environmental damage".[202]

75. Finally, with regard to the link to the health or survival of the population in Article 55 of Additional Protocol I, the *travaux* clarify that "the word 'population' was used without its usual qualifier of 'civilian' because the future survival or health of the population in general, whether or not combatants, might be at stake" and furthermore that "[t]he population might be that of today or that of tomorrow, in the sense that both short-term and long-term survival was contemplated".[203]

[202] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 31.

[203] *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. XV, CDDH/III/275, p. 360. See also Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 663, para. 2134.

Rule 3 – Prohibition of using the destruction of the natural environment as a weapon

A. Destruction of the natural environment may not be used as a weapon.

B. For States party to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD Convention), the military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party is prohibited.

Commentary

Rule 3.A

76. This rule has been established as a norm of customary international law applicable in international, and arguably also in non-international, armed conflicts.[204] Its wording is reflective of State practice, the specificities of which are addressed below.

Destruction

77. Exclusively for the purposes of this rule, "destruction" should be understood to mean serious damage to the natural environment comparable to that observed in the 1990–1991 Gulf War,[205] or "ecocide" as described below. It is likely that any such act would also involve a violation of one or more of the rules governing the conduct of hostilities or the destruction of property. For example, States referred to the burning of oil fields and discharge of oil into the Persian Gulf as the "exploitation of the environment as a weapon"[206] and/or used language indicating that these actions were potential violations of existing IHL rules.[207] Similarly, an act of "ecocide" as described in the legislation referred to below could also violate rules, including those governing distinction or proportionality. States have expressed explicit condemnation when such acts are carried out for the purpose of destroying the natural environment, thereby affirming that they merit clear outrage and action from the international community. Given that the natural environment continues, too often, to be a silent casualty of war, the ICRC considers that such specific recognition and focused condemnation is not without value.

[204] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, second sentence of Rule 45 and commentary, pp. 151 and 155–156: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45 and related practice.

[205] Much scholarship addresses the nature of the damage that was wrought on the natural environment in the 1990–1991 Gulf War. See e.g. C. York, "International law and the collateral effects of war on the environment: The Persian Gulf", *South African Journal on Human Rights*, Vol. 7, 1991, pp. 269–290; and A. Roberts, "Environmental destruction in the 1991 Gulf War", *International Review of the Red Cross*, Vol. 32, No. 291, December 1992, pp. 538–553.

[206] See Iraq, Letter dated 12 August 1991 to the UN Secretary-General, UN Doc. A/46/358-S/22931, 13 August 1991, p. 1, in which Iraq affirmed that it was willing "to do everything to protect the environment and natural resources and not to exploit them as a weapon in times of armed conflict"; Jordan, Note verbale dated 5 July 1991 to the UN Secretary-General, UN Doc. A/46/141, 8 July 1991, which requested the inclusion of the item "exploitation of the environment as a weapon in times of armed conflict and the taking of practical measures to prevent such exploitation" in the provisional agenda of the 46th session of the UN General Assembly; and, in support of Jordan's request, Kuwait, Letter dated 12 July 1991 to the UN Secretary-General, UN Doc. A/45/1035-S/22787, 15 July 1991, p. 1.

[207] See e.g. Israel, *Rules of Warfare on the Battlefield*, 2006, p. 16, which states that "[s]etting fire to the oil brought no military advantage to Iraq"; and Jordan, Explanatory memorandum, annexed to Note verbale dated 5 July 1991 to the UN Secretary-General, UN Doc. A/46/141, 8 July 1991, p. 2, para. 1, which refers, among other things, to the exploitation of the environment in the Gulf War as a means of "indiscriminate destruction". See also the statements of US President George H.W. Bush that the spilling of oil by Iraq brought "no military advantage" and referring to the "wanton" setting alight of oil wells, quoted in Roberts, "Environmental destruction in the 1991 Gulf War", pp. 542–543.

78. In greater detail, understandings of the meaning of "destruction" for the purposes of this rule should be informed by the State practice prohibiting "ecocide",[208] as well as by the specific contexts that have given rise to State condemnation of the use of the environment "as a weapon".[209]

79. The term "ecocide" is defined in the penal codes of former Soviet Union countries as "mass destruction of the flora and fauna and poisoning of the atmosphere or water resources, as well as other acts capable of causing an ecological catastrophe".[210] The Yugoslav Federal Ministry for Development, Science and the Environment considered that "a serious threat to human health in general and to ecological systems locally and in the broader Balkan and European regions" was of a threshold to constitute "ecocide".[211] In light of the environmental devastation that followed Iraq's invasion of Kuwait in August 1990,[212] Iraq and Kuwait separately committed in letters to the UN secretary-general not to use the environment and natural resources "as a weapon".[213] In 1991, ministers of the environment of the Organisation for Economic Co-operation and Development (OECD) adopted a declaration urging Iraq to end its resort to environmental destruction in relation to the burning of oil fields and discharging of oil into the Gulf.[214]

80. Thus, State practice giving rise to the term "destruction" as used here does not link the prohibition to the "widespread, long-term and severe" threshold in Article 35(3) and the second sentence of Article 55(1) of the 1977 Additional Protocol I and in the first clause of Rule 45 of the ICRC Study on Customary International Humanitarian Law. In other words, while this rule is understood to prohibit destruction of a certain magnitude as illustrated by the State practice cited above, an assessment of whether the natural environment has been subject to "destruction" for the purposes of this rule does not require consideration of the "widespread, long-term and severe" threshold. Furthermore, the magnitude of destruction considered unlawful by States is not static, as recognition of the need to limit damage to the natural environment further develops and as scientific knowledge of the interconnectedness of different parts of the natural environment and the civilians who depend on it continues to grow.

81. To be clear, destruction of this kind is prohibited by this rule when it takes place with the requisite specific purpose discussed below.

Use as a weapon

82. The formulation of this rule reflects the varied ways in which States have expressed this norm, although admittedly the term "weapon" is not apposite from a technical perspective. Rather, the meaning of the term "weapon" here is akin to a tactic or method of warfare. On this basis, examples of conduct prohibited by this rule include the following when they are carried out for the specific purpose of destroying the natural environment:[215] deliberate attacks

[208] See e.g. Armenia, *Penal Code*, 2003, Article 394; Belarus, *Criminal Code*, 1999, Article 131; Kazakhstan, *Penal Code*, 1997, Article 161; Kyrgyzstan, *Criminal Code*, 1997, Article 374; Republic of Moldova, *Penal Code*, 2002, Article 136; Russian Federation, *Criminal Code*, 1996, Article 358; Tajikistan, *Criminal Code*, 1998, Article 400; Ukraine, *Criminal Code*, 2001, Article 441; and Viet Nam, *Penal Code*, 1999, Article 342; cited in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. II, Part I, practice related to Rule 45, pp. 883–887: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule45.

[209] For examples beyond those included here, see *ibid.*, practice related to Rule 45, pp. 876–903: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule45.

[210] See the references in fn. 208 above. For a commentary on the coinage in 1970 and subsequent use of the term "ecocide", see A.H. Westing, *Ecological Consequences of the Second Indochina War*, Stockholm International Peace Research Institute, Almqvist & Wikseel, Stockholm, 1976, p. 1 and fn. 2, and p. 86.

[211] Federal Republic of Yugoslavia, Appeal by the Federal Ministry for Development, Science and the Environment, Information about the Effects of the NATO Aggression on the Environment in the Federal Republic of Yugoslavia, 30 April 1999.

[212] For a critical assessment of the damage caused to the natural environment during the Gulf crisis from August 1990 to February 1991, see S.A.S. Omar, N.R. Bhat and A. Asem, "Critical assessment of the environmental consequences of the invasion of Kuwait, the Gulf War, and the aftermath", in T.A. Kassim and D. Barcelo (eds), *Environmental Consequences of War and Aftermath*, Springer-Verlag, Berlin, 2009, pp. 142–170.

[213] Iraq, Letter dated 12 August 1991 to the UN Secretary-General, UN Doc. A/46/358-S/22931, 13 August 1991, p. 1; Kuwait, Letter dated 12 July 1991 to the UN Secretary-General, UN Doc. A/45/1035-S/22787, 15 July 1991, p. 1.

[214] OECD, Déclaration des ministres de l'environnement sur la situation écologique dans le Golfe, Communiqué SG/Press (91), 30 January 1991, quoted in P. Fauteux, "L'utilisation de l'environnement comme instrument de guerre au Koweït occupé", in B. Stern (ed.), *Les aspects juridiques de la crise et de la guerre du Golfe*, Montchrestien, Paris, 1991, p. 234.

[215] As noted by Hulme, among others, it was the deliberate nature of the Iraqi environmental destruction that prompted international condemnation: Hulme, "Natural environment", p. 234. Some States made reference in this context to environmental "terrorism": see e.g. Germany, Lower House of Parliament, Statement by the Federal Minister for the Environment, Protection of Nature and Nuclear Safety, Dr. Klaus Topfer, *Plenarprotokoll 12/6*, 31 January 1991, p. 191, in which the minister accused Saddam Hussein of "brutal terrorism … against the environment"; Kuwait, Letter dated 12 July 1991 to the UN Secretary-General, UN Doc. A/45/1035-S/22787, 15 July 1991, p. 1, in which Kuwait referred to "protecting the environment and natural resources, which are the property of the entire mankind, and preventing their use as a weapon of terrorism as we witnessed during the war of Kuwait's liberation"; and United States Department of Defense, "Final Report to Congress on the Conduct of the Persian Gulf War, Appendix O on the Role of the Law of War", *International Legal Materials*, Vol. 31, 10 April 1992, pp. 612–644, Section H on "environmental terrorism".

against the natural environment, in violation of the principles of distinction or proportionality;[216] the wanton destruction of natural resources;[217] and the use of environmental modification techniques, when these cause destruction to the natural environment of the kind described above. For example, triggering a tsunami or earthquake for the purpose of destroying the natural environment, and thereby causing this destruction, is prohibited by this rule. By contrast, the rule does not prohibit acts such as the controlled incineration of a specific part of a forest concealing enemy troops or the use of water to flood an area in order to drown troops in that area, unless those acts are carried out in violation of rules regulating the conduct of hostilities and are furthermore carried out for the specific purpose of seriously damaging the natural environment.

83. The difference between Rule 3.A and Rule 3.B is that the former prohibits acts including but not limited to the "environmental modification techniques" referred to in Rule 3.B but only does so when such acts are committed for the specific purpose of destroying the natural environment and cause destruction of the natural environment of the above-described magnitude. Conceivably, the use of environmental modification techniques may not in fact destroy the natural environment (for example, the use of cloud-seeding), although it may cause destruction, damage or injury to civilians or civilian objects that would nevertheless violate the ENMOD Convention.

Rule 3.B

84. For States party to the 1976 ENMOD Convention, the military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party is prohibited.[218] It is unclear to what extent this rule has become customary law, and views differ as to its customary status.[219]

Environmental modification techniques

85. The term "environmental modification techniques" 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.[220] An example of a prohibited deliberate environmental modification technique agreed by States party to the ENMOD Convention is the use of herbicides to upset the ecological balance of a region.[221] Further examples may include the initiation of natural disasters such as hurricanes or earthquakes, or the modification of weather or climate (for example by "seeding clouds" with chemical compounds to cause rain).[222]

[216] For example, without prejudice to the unlawful character of the acts, the foiling of amphibious attacks and the creation of cloud cover for retreating forces have been referred to as possible military rationales for the pumping of oil into the Persian Gulf and the burning of Kuwaiti oil fields respectively. For further details, see York, "International law and the collateral effects of war on the environment: The Persian Gulf", pp. 271 and 277.

[217] See e.g. Iraq, Letter dated 12 August 1991 to the UN Secretary-General, UN Doc. A/46/358-S/22931, 13 August 1991, p. 1.

[218] ENMOD Convention (1976), Art. 1.

[219] For consideration of the customary status of this ENMOD rule, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on the second sentence of Rule 45, p. 155: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45.

[220] ENMOD Convention (1976), Art. 2.

[221] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 76, p. 266: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule76:

> [T]he Final Declaration of the Second Review Conference of the Parties to the ENMOD Convention reaffirmed that the military and any other hostile use of herbicides as an environmental modification technique is a prohibited method of warfare "if such a use of herbicides upsets the ecological balance of a region, thus causing widespread, long-lasting or severe effects as the means of destruction, damage or injury to another State Party.

[222] For a discussion of these and other environmental modification techniques, see Hulme, *War Torn Environment*, pp. 11–12.

Widespread, long-lasting or severe

86. Unlike the threshold of Articles 35 and 55 of Additional Protocol I, the ENMOD Convention's three criteria of "widespread, long-lasting or severe" are alternative rather than cumulative. The Consultative Committee of Experts established in accordance with Article V(2) of the Convention defined these terms as follows:

> a) "widespread": encompassing an area on the scale of several hundred square kilometres;
> b) "long-lasting": lasting for a period of months, or approximately a season;
> c) "severe": involving serious or significant disruption or harm to human life, natural and economic resources or other assets.[223]

87. Thus, the use of an environmental modification technique, when there can be knowledge or inference that the technique will or probably will cause widespread, long-lasting or severe damage in line with the above definitions, is prohibited.[224] It follows that this provision can be violated in cases where damage does not reach the "widespread, long-term and severe" threshold of Articles 35(3) and 55(1) of Additional Protocol I.

88. To comply with their obligation under this rule, States party to the ENMOD Convention must, therefore, inform themselves as far as possible of the potential effects of their planned military or hostile actions.[225]

[223] Annex to the ENMOD Convention, included in the report transmitted by the Conference of the Committee on Disarmament to the UN General Assembly in September 1976: UN General Assembly, *Report of the Conference of the Committee on Disarmament*, Vol. I, p. 91.

[224] The wording "knowledge or inference" and "will or probably will" is based on Rule 45 of the ICRC Study on Customary International Humanitarian Law: Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 158: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45:

> As a violation of this rule inevitably presupposes that there can be knowledge or an inference that a certain method or means of warfare will or probably will cause widespread, long-term and severe damage to the environment, there will need to be some understanding of which types of warfare will have such disastrous consequences on which types of environment.

[225] This obligation arises also from Rule 8 of the present Guidelines, which is based on Rule 44 of the ICRC Study on Customary International Humanitarian Law; see *ibid.*, Rule 44, p. 147 (on precautions to be taken in relation to the natural environment): https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44. See also *ibid.*, commentary on Rule 45, p. 158: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45, which concludes:

> [T]here will need to be some understanding of which types of warfare will have such disastrous consequences on which types of environment. If read together with Rule 44, this means that parties to a conflict are obliged to inform themselves as far as possible of the potential results of their planned actions and to refrain from actions that [may] be expected to cause widespread, long-term and severe damage to the environment.

Rule 4 – Prohibition of attacking the natural environment by way of reprisal

A. For States party to Protocol I Additional to the Geneva Conventions (Additional Protocol I):
   i. Attacks against the natural environment by way of reprisal are prohibited.
   ii. Reprisals against objects protected under the Protocol are prohibited, including when such objects are part of the natural environment.

B. For all States, reprisals against objects protected under the Geneva Conventions or the Hague Convention for the Protection of Cultural Property are prohibited, including when such objects are part of the natural environment.

Commentary

Rule 4.A

89. Rule 4.A.i reflects Article 55(2) of the 1977 Additional Protocol I and is binding between States Parties in situations covered by this Protocol. It expressly prohibits attacks by way of reprisals against the natural environment. States Parties cannot, therefore, resort to a belligerent reprisal against the natural environment, even in circumstances when the reprisal would otherwise be lawful,[226] subject to the understandings submitted by States Parties.[227] This means that even in such circumstances, a State party to Additional Protocol I cannot disregard the specific protection afforded to the natural environment.[228]

90. Rule 4.A.ii is based on other provisions of Additional Protocol I that prohibit reprisals against certain protected objects, which would also afford protection to the natural environment if parts of it constitute such objects.[229] Of particular relevance to the natural environment are the prohibitions set down in Additional Protocol I on attacking the following objects by way of reprisals during the conduct of hostilities: civilian objects in general (Art. 52(1));[230] historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples (Art. 53);[231] objects indispensable to the survival of the civilian population (Art. 54);[232] and works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations (Art. 56).[233] When part of the natural environment constitutes one such protected object, it will thereby be protected from reprisals by these rules.[234] For example, for a State party to Additional Protocol I, a belligerent cannot, by way of reprisal, direct an attack on a forest that has not become a military objective.

Rule 4.B

91. This rule, which is stated here with the addition of an express reference to the natural environment, has been established as a rule of customary international law applicable in international armed conflicts.[235] It also reflects treaty obligations for States party to the 1949 Geneva Conventions and to the 1954 Hague Convention for the Protection of Cultural Property. While it forms part of the protection extended to the natural environment by other

[226] On the conditions for lawful belligerent reprisals, see ICRC, *Commentary on the First Geneva Convention*, 2016, paras 2731–2732; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 145, pp. 513–518: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule145 and related practice.

[227] For reservations or declarations to Article 55(2) of Additional Protocol I, see the practice of Egypt, Germany, Italy and the United Kingdom cited in *ibid.*, Vol. II, Part 2, practice related to Rule 147 (Reprisals against Protected Objects), Section E. Natural environment, p. 3471: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule147.

[228] The specific protections that IHL affords the natural environment are set out in the present Part I of these Guidelines.

[229] For reservations or declarations to those provisions of Additional Protocol I, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. II, Part 2, practice related to Rule 147 (Reprisals against Protected Objects), pp. 3427–3428, 3453, 3463–3464 and 3480–3481: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule147.

[230] See also Rule 5 of the present Guidelines regarding the protection of the natural environment as a civilian object.

[231] See also Rule 12 of the present Guidelines regarding the protection of the natural environment as cultural property.

[232] See also Rule 10 of the present Guidelines regarding the protection of the natural environment as an object indispensable to the survival of the civilian population.

[233] See also Rule 11 of the present Guidelines regarding the protection afforded to the natural environment by the rules governing works and installations containing dangerous forces.

[234] On the civilian character of the natural environment, see paras 18–21 of the present Guidelines. On when parts of the natural environment can become military objectives, see Rule 5 of the present Guidelines.

[235] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 147, p. 523: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule147 and related practice.

rules of IHL, it is nevertheless included here in Part I of the present Guidelines on "specific" protection in order to address the rules on reprisals together.

92. In this regard, two prohibitions are of particular significance to the protection of the natural environment. Article 33 of the Fourth Geneva Convention provides that reprisals are prohibited against the property of protected persons, i.e. civilians in the power of the adverse party. Article 4(4) of the Hague Convention for the Protection of Cultural Property prohibits "any act directed by way of reprisals against cultural property" of great importance to the cultural heritage of every people. Parts of the natural environment may in certain circumstances constitute property of protected persons[236] or such cultural property.[237] For instance, Gobustan Archaeological Site, which is a concentration of rock engravings and archaeological traces covering three areas of a plateau of rocky boulders rising out of the semi-desert of central Azerbaijan, is registered as cultural property under enhanced protection under the 1999 Second Protocol to the Hague Convention for the Protection of Cultural Property[238] and has been inscribed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Heritage Site cultural landscape.[239] In cases where objects that are part of the natural environment constitute such property, they will be protected against reprisals by these prohibitions.[240]

93. As addressed under Rule 4.A, in addition to the provisions in the Geneva Conventions and the Hague Convention for the Protection of Cultural Property, Additional Protocol I prohibits reprisals against the following objects during the conduct of hostilities: civilian objects in general; historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples; objects indispensable to the survival of the civilian population; the natural environment; and works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations.[241] While, under treaty law, the vast majority of States have now specifically committed not to take reprisal action against such objects, the ICRC Study on Customary International Humanitarian Law did not find these prohibitions to be established as rules of customary international law.[242]

94. As for non-international armed conflicts, the study found that parties to such conflicts do not have the right to resort to belligerent reprisals.[243]

[236] Regarding the protection afforded the natural environment by the rules on enemy property and examples of when parts of the natural environment may constitute property of protected persons, see Rules 13 and 15 of the present Guidelines.

[237] Regarding the protection afforded the natural environment by the rules on cultural property and examples of when parts of the natural environment may constitute cultural property, see Rule 12 of the present Guidelines.

[238] UNESCO, International List of Cultural Property Under Enhanced Protection, pp. 10–11: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/Enhanced-Protection-List-2019_Eng_04.pdf.

[239] UNESCO World Heritage Committee, Nomination of natural, mixed and cultural properties to the world heritage list – Gobustan Rock Art Cultural Landscape, Decision: 31 COM 8B.49, 2007: https://whc.unesco.org/en/decisions/1351.

[240] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 147, pp. 523–524: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule147.

[241] For more details, see Rule 4.A of the present Guidelines.

[242] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 147, p. 525: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule147; and ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflict (2019), Principle 16, p. 257, according to which "[a]ttacks against the natural environment by way of reprisals are prohibited". The commentary on this draft principle, pp. 259–260, para. 10, notes:

> Despite the concerns raised during drafting, including a draft principle on the prohibition of reprisals against the natural environment was viewed as being particularly relevant and necessary, given that the overall aim of the draft principles is to enhance environmental protection in relation to armed conflict. In the light of the comments made above, the inclusion of this draft principle can be seen as promoting the progressive development of international law, which is one of the mandates of the Commission.

For States' positions on whether a general prohibition of reprisals should be included, and whether this reflects existing law, in the context of the ILC's work in relation to the protection of the natural environment, see the statements before the Sixth Committee of the UN General Assembly of Austria, Israel, Italy, New Zealand, Norway on behalf of Nordic States, Singapore, Switzerland, the United Kingdom and the United States, 70th session, Agenda item 83, November 2015; Malaysia, 71st session, Agenda item 78, 28 October 2016; and Peru, 71st session, Agenda item 78, 2 November 2016.

[243] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 148, p. 526: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule148 and related practice.

PART II: GENERAL PROTECTION OF THE NATURAL ENVIRONMENT UNDER INTERNATIONAL HUMANITARIAN LAW

Section 1. Protection afforded to the natural environment as civilian in character by the principles of distinction, proportionality and precautions

95. As noted above in the "Preliminary considerations" section of the present Guidelines, it is generally recognized today that, by default, the natural environment is civilian in character. As such, any part of the natural environment that is not a military objective is protected by the general principles and rules on the conduct of hostilities that protect civilian objects, including the principles of distinction[244] (encompassing the prohibition of indiscriminate attacks),[245] proportionality[246] and precautions.[247] These general rules are of a customary nature in both international and non-international armed conflicts.[248]

96. The reference to the "natural environment" in the rules in this section (Rules 5–9) encompasses any part of the natural environment that is not a military objective. This is made clear in Rule 5 expressing the principle of distinction with regard to the natural environment.

97. Articles 35(3) and 55 of Additional Protocol I and the corresponding Rule 45 of the ICRC Study on Customary International Humanitarian Law – discussed in Part I of the present Guidelines – prohibit only those attacks which are intended or may be expected to cause widespread, long-term and severe damage to the natural environment.[249] By comparison, the general rules affording protection to civilian objects, including any part of the natural environment that is not a military objective, may, depending on the circumstances, render unlawful an attack which would cause damage to the natural environment of lesser gravity or magnitude.

[244] Additional Protocol I (1977), Arts 48 and 52; Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 7, p. 25: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule7 and related practice; *ibid.*, Rule 8, p. 29: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule8 and related practice; *ibid.*, Rule 9, p. 32: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule9 and related practice; and *ibid.*, Rule 10, p. 34: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule10 and related practice.

[245] Additional Protocol I (1977), Art. 51(4); Henckaerts/Doswald-Beck (eds), ICRC Study on Customary International Humanitarian Law, Vol. I, Rule 11, p. 37: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule11 and related practice; and *ibid.*, Rule 12, p. 40: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule12 and related practice.

[246] Additional Protocol I (1977), Art. 51(5)(b); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 14, p. 46: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule14 and related practice.

[247] Additional Protocol I (1977), Arts 57 and 58; Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 15, p. 51: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15 and related practice; *ibid.*, Rule 16, pp. 55: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule16 and related practice; *ibid.*, Rule 17, p. 56: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule17 and related practice; *ibid.*, Rule 18, p. 58: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule18 and related practice; *ibid.*, Rule 19, p. 60: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule19 and related practice; *ibid.*, Rule 20, p. 62: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule20 and related practice; *ibid.*, Rule 21, p. 65: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule21 and related practice; *ibid.*, Rule 22, p. 68: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule22 and related practice; *ibid.*, Rule 23, p. 71: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule23 and related practice; and *ibid.*, Rule 24, p. 74: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule24 and related practice.

[248] On the applicability of general principles on the conduct of hostilities to the natural environment, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 44, p. 147: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44; and *ibid.*, Rule 45, p. 151: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45. See, in particular, ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 30: "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."

[249] Regarding the prohibition of widespread, long-term and severe damage set out in these provisions, see Rule 2 of the present Guidelines.

Rule 5 – Principle of distinction between civilian objects and military objectives

No part of the natural environment may be attacked, unless it is a military objective.

Commentary

98. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[250] The application of the general customary rule of distinction specifically to the natural environment is articulated in Rule 43.A of the ICRC Study on Customary International Humanitarian Law, on the basis of the civilian character of the natural environment.[251] The rule of distinction between civilian objects and military objectives is codified more generally in Articles 48 and 52(2) of the 1977 Additional Protocol I.

99. Military operations often take place in the natural environment or in its vicinity. For example, forces often manoeuvre through and conduct hostilities in open areas of land, forests, mountains and other natural terrains. The principle of distinction requires belligerents to conduct operations in a manner that respects the difference between civilians and civilian objects on the one hand, and combatants and military objectives on the other. An attack cannot be directed against the natural environment unless it is directed against a specific part of it that has become a military objective.[252]

100. For a part of the natural environment to fulfil the definition of a military objective, a certain specificity is necessary. First, the definition of a military objective can only be fulfilled by distinct parts of the natural environment (such as a specific cave). Second, the distinct part of the natural environment in question must fulfil both prongs of the definition of a military objective, just as any object must do: it must, by its nature, location, purpose or use, make an effective contribution to military action, and its total or partial destruction, capture or neutralization, in the circumstances ruling at the time, must offer a definite military advantage.[253]

First prong of the definition of military objective

101. With regard to the first prong of this definition, a distinct part of the natural environment will never by its "nature" make an effective contribution to military action. This is because the term "nature" refers to the intrinsic character of an object, and the intrinsic character of the natural environment is civilian.[254] A distinct part of the natural environment may, however, make an effective contribution to military action owing to its location, purpose or use. For example, a hill may contribute effectively to the military action of enemy forces by location if it provides them with a vantage point over an adversary's camp,[255] and similarly a mountain pass may contribute effectively to the military action of enemy forces if it allows them to advance more quickly as they occupy territory.[256] The purpose (i.e. intended future use)[257] or use of foliage in a specific forest area may contribute effectively to military action by providing cover for a troop manoeuvre. However, the general concept of an "area" must not be interpreted overly broadly such that a large expanse of forest is deemed to be a military objective simply because combatants are located in a small portion of it; only that portion of the forest that has been identified as directly contributing to military action will be liable to become a military objective, provided that the second prong of the definition is also fulfilled.[258]

102. Furthermore, regarding the first prong of the definition of military objective, the contribution that a distinct part of the natural environment makes to military action must be both "effective" and directed towards the *military action*

[250] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 43.A, p. 143: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43 and related practice. For the general rule of distinction, see *ibid.*, Rule 7 and commentary, p. 25: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule7.

[251] On the civilian character of the natural environment, see the "Preliminary considerations" section of the present Guidelines, paras 18–21.

[252] Article 2(4) of the 1980 Protocol III to the CCW reflects this rule in the specific context of incendiary weapons (see Rule 23 of the present Guidelines).

[253] Additional Protocol I (1977), Art. 52(2); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 8, p. 29: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule8.

[254] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 27–28.

[255] For example, in the United Kingdom's military manual, a hill is given as an example of a military objective: United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 5.4.5(f).

[256] For instance, a mountain pass is given as an example of a military objective in United States, *Law of War Manual*, 2015 (updated 2016), pp. 218–219, para. 5.6.8.4.

[257] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 636, para. 2022.

[258] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 28.

of an adversary. While there are diverging views,[259] in the ICRC's view this means that the contribution must be directed towards the actual war-fighting capabilities of a party to the conflict,[260] and accordingly that a contribution merely to the war-*sustaining* capabilities of a party to the conflict is not sufficient to make the object fulfil the definition of a military objective. This differentiation is crucial. For example, under the ICRC view, an area of the natural environment where the mining of high-value natural resources takes place, while it may generate significant revenue for the war effort (i.e. war-sustaining capabilities) of an adversary, does not make a direct effective contribution to military action.[261]

Second prong of the definition of military objective

103. To fulfil the second prong of the definition of a military objective, the total or partial destruction, capture or neutralization of a distinct part of or specific object belonging to the natural environment, in the circumstances ruling at the time, must offer a *definite military advantage*. The term "definite" requires that the advantage be concrete and perceptible, and thus that those ordering or executing the attack have concrete information as to what the advantage offered by attacking the distinct component of the natural environment will be.[262] The term "military" clarifies that the anticipated advantage cannot be merely political, social, psychological, moral, economic or financial in nature.[263] For example, where a celebrated national park occupies a cherished place in a State's history and identity, attacking such a park may undermine national morale and political resilience. However, as undermining national morale and political resilience is not a military advantage, the national park cannot fulfil the definition of a military objective by this metric.[264] Finally, the phrase "in the circumstances ruling at the time" must be understood as a situational and temporal aspect of the whole concept of military objective. It means that where the destruction of a part of the natural environment does not yet offer, or no longer offers, a definite military advantage, the object must not be attacked, and that an attack must cease as soon as the military advantage is realized.[265]

Targeting an area of land and other military practices of directing ammunition at parts of the natural environment

104. Military practices that involve directing fire at parts of the natural environment are particularly likely to damage it. Most relevant in this regard, a number of States have stated that an area of land can fulfil the definition of military objective, and this position is widely accepted.[266] Accordingly, neither the principle of distinction nor the prohibition of indiscriminate attacks prevent, for example, the use of mine-clearing line charges to make way for friendly forces through a prairie mined by the adversary; the direction of fire at thick plantation to generate a line of sight that enables the identification of enemy forces using the plant cover to attack; or interdiction fire directed, for example, at a river crossing by which the adversary intends to move troops to mount an attack.[267] The specific area of land

[259] The position of the United States is that objects that make an effective contribution to the war-fighting or war-sustaining capabilities of the adversary are military objectives; see B. Egan, Legal Adviser, US Department of State, Remarks to the American Society of International Law, "International law, legal diplomacy, and the counter-ISIL campaign: Some observations", 1 April 2016, in *International Law Studies*, Vol. 92, 2016, pp. 235–248; United States, *Law of War Manual*, 2015 (updated 2016), pp. 213–214, para. 5.6.6.2; and R. Goodman, "The Obama administration and targeting 'war-sustaining' objects in non-international armed conflict", *American Journal of International Law*, Vol. 110, No. 4, October 2016, pp. 663– 679.

[260] See L. Gisel, "The relevance of revenue-generating objects in relation to the notion of military objective", in ICRC/College of Europe, *The Additional Protocols at 40: Achievements and Challenges*, Proceedings of the 18th Bruges Colloquium, 19–20 October 2017, *Collegium*, No. 48, Autumn 2018, pp. 139–150. See also Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, p. 109; M. Zwanenburg, "The challenges of applying the principles of distinction, proportionality and precautions in contemporary military operations from a State perspective", in ICRC/College of Europe, *The Additional Protocols at 40: Achievements and Challenges*, p. 155; ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 320; Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 150, para. 60.11; and Schmitt/Vihul (eds), *Tallinn Manual*, majority position expressed in the commentary on Rule 100, p. 441, para. 19.

[261] See Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 28. See also UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 13.

[262] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 636, para. 2024.

[263] HPCR, *Manual on International Law Applicable to Air and Missile Warfare*, commentary on Rule 1(w), p. 36, para. 4; ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 364.

[264] Example taken from UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 13.

[265] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 28.

[266] On an area of land being a military objective, see Henckaerts/Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. II, Part 1, practice related to Rule 8 (Areas of Land), pp. 223–227: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v2_rul_rule8_sectionh.

[267] Bothe/Partsch/Solf, *New Rules for Victims of Armed Conflicts*, pp. 348–349, para. 2.5.3.3:

must fulfil the definition of military objective in its entirety; the scope, and limits, of the ground area presenting the distinctive feature in question must be carefully assessed and cannot be too widespread.[268]

105. There are a small number of other common practices by which militaries direct fire at or release a piece of ordnance on parts of the natural environment in situations where such parts do not necessarily fulfil the definition of military objective. Such practices include calibrating artillery by firing a shell at empty open ground or a group of trees in order to improve accuracy; and fighter jets jettisoning unused pieces of ordnance in the ocean before returning to aircraft carriers in order to reduce the risk of accidents upon landing. These practices would not necessarily be considered to amount to an attack (i.e. an act of violence against the adversary, whether in offence or in defence) such that they fall under this rule, for example when calibration is carried out by directing fire at objects under the military's own control. The level of damage caused by such practices, such as the practice of jettisoning a piece of ordnance from a jet into the ocean, might also be understood to be minimal, and the ICRC observes that these practices have therefore not risen to the forefront of legal debates on the application of IHL rules to the natural environment.[269] Even if some of these practices would technically be deemed as amounting to attacks, extensive and uncontroversial State practice should be understood as carving out an exception to the general rule in these situations where the damage is minimal and is not the object of the operation but occurs during activities meant to avoid greater incidental civilian harm (e.g. some calibration practices) or for altogether different (lawful) purposes (e.g. safety procedures with respect to jettisoning bombs). The ICRC does not view States' affirmation of the civilian character of the natural environment as intending to outlaw these standard practices, and the present Guidelines likewise do not seek to change them. At the same time, the ICRC does not consider that these limited exceptions of State practice put into question today's general recognition that the natural environment is civilian in character and that, as such, any part of the natural environment that is not a military objective is protected as a civilian object.

> Questions have been raised as to whether certain methods of warfare common in past armed conflict would meet the test of the prohibition against indiscriminate attacks. …
> (b) *Interdiction fires* are delivered, at random intervals, on selected terrain, such as road junctions, bridges, stream and river crossings sites and defiles for the purpose of denying the enemy the unrestricted use of these areas. If intelligence information shows that these critical points are heavily used *in the circumstances ruling at the time*, the disruption in enemy movement occasioned by interdiction fire affords a definite military advantage.

[268] Y. Dinstein, "Legitimate military objectives under the current *jus in bello*", *International Law Studies*, Vol. 78, 2002, p. 150; S. Oeter, "Methods and means of combat", in D. Fleck (ed.), *The Handbook of Humanitarian Law in Armed Conflicts*, 3rd ed., Oxford University Press, Oxford, 2013, pp. 192–193.

[269] The position that a minimal amount of damage is required for an operation to qualify as an attack has recently come to the forefront of debates regarding cyber operations; see Schmitt/Vihul (eds), *Tallinn Manual*, commentary on Rule 92 (Definition of cyber attack), p. 416, para. 4: "The Experts agreed that *de minimis* damage or destruction does not meet the threshold of harm required by this Rule." See also N. Neuman, "Challenges in the interpretation and application of the principle of distinction during ground operations in urban areas", *Vanderbilt Journal of Transnational Law*, Vol. 51, 2018, p. 820: "However, it could be argued that if the act is not expected to cause actual harm to a person or an object, then no attack will have occurred. According to this argument, … even dropping a bomb in open terrain – which is expected to cause no real damage except for moving sand from one place to another – may not be considered an attack."

Rule 6 – Prohibition of indiscriminate attacks

Indiscriminate attacks are prohibited. Indiscriminate attacks are those:

A. which are not directed at a specific military objective;

B. which employ a method or means of combat which cannot be directed at a specific military objective; or

C. which employ a method or means of combat the effects of which cannot be limited as required by international humanitarian law;

and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects, including the natural environment, without distinction.

Commentary

106. This general rule, which contains both the prohibition and definition of indiscriminate attacks and which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[270] Its wording mirrors Article 51(4) of the 1977 Additional Protocol I. The general prohibition of indiscriminate attacks represents an implementation of the principle of distinction; the protection extended by this rule to the natural environment thus arises from its default civilian character.[271] Compliance with this rule is best ensured when armed forces are trained in the rules governing the conduct of hostilities and equipped with weapons that, in the circumstances in which they are employed, can effectively be directed at specific military objectives and whose effects can be limited as required by IHL.[272]

Attacks not directed at a specific military objective (Rule 6.A)

107. Rule 6.A is an application of the obligation to direct attacks only against military objectives.[273] It protects the natural environment from the damage it would be exposed to if a weapon were to be used without being directed against a military objective. The issue at stake here is not the weapon used, but how it is used, in particular when munitions are fired blindly or indifferently, without regard for where they are likely to hit and for the consequences for protected persons and objects.[274] For example, if a party to a conflict sets up a small military camp in a limited area of a large forest, targeting the entire forest without trying to locate, and direct the attack at, the camp would violate this rule.[275]

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[270] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 11 (which sets out the prohibition of indiscriminate attacks) and commentary, p. 37: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule11 and related practice; and *ibid.*, Rule 12 (which sets out the definition of indiscriminate attacks) and commentary, p. 40: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule12 and related practice.

[271] On the civilian character of the natural environment, see the "Preliminary considerations" section of the present Guidelines, paras 18–21. On when distinct parts of the natural environment can become a military objective, see Rule 5 of the present Guidelines. For an application of the general prohibition of indiscriminate attacks specifically to the natural environment, see the memorandum submitted by Jordan and the United States to the Sixth Committee of the UN General Assembly prior to the adoption in 1992 of UN General Assembly Resolution 47/37 on the protection of the environment in times of armed conflict, which stated in this context that "[i]t is a war crime to employ acts of violence not directed at specific military objectives, to employ a method or means of combat which cannot be directed at a specific military objective, or to employ a means or method of combat the effects of which cannot be limited as required by the law of armed conflict": UN General Assembly, "International law providing protection to the environment in times of armed conflict", Letter dated 28 September 1992 from the Permanent Missions of the Hashemite Kingdom of Jordan and of the United States of America addressed to the Chairman of the Sixth Committee, UN Doc. A/C.6/47/3, 28 September 1992, para. 1(g).

[272] See Rules 30–32 of the present Guidelines; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, commentary on Rule 71, pp. 244–250: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule71 and related practice.

[273] Additional Protocol I (1977), Arts 48 and 52(2); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, Rule 1, p. 3: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule1 and related practice; and Rule 7, p. 25: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule7 and related practice.

[274] See e.g. W.H. Boothby, *The Law of Targeting*, Oxford University Press, Oxford, 2012, p. 92; Y. Dinstein, "Distinction and loss of civilian protection in international armed conflicts", *Israel Yearbook on Human Rights*, Vol. 38, 2008, p. 3; and M.N. Schmitt, "Air warfare", in A. Clapham and P. Gaeta (eds), *The Oxford Handbook of International Law in Armed Conflict*, Oxford University Press, Oxford, 2014, p. 137.

[275] For the same idea with regard to urban areas, see T.D. Gill and D. Fleck, *The Handbook of the International Law of Military Operations*, 2nd ed., Oxford University Press, Oxford, 2015, p. 281: "For instance, insurgent forces may operate from an urban area. This fact does not justify blindly shelling or bombing the area without making an effort to aim at military objectives."

Attacks which employ a method or means of combat which cannot be directed at a specific military objective, or the effects of which cannot be limited as required by IHL (Rules 6.B and 6.C)

108. Rule 6.B, like Rule 6.A, is an application of the obligation to direct attacks only against military objectives,[276] while Rule 6.C is based on the logical argument that employing methods or means of combat whose effects cannot be limited as required by IHL is prohibited.[277]

109. The prohibitions under Rules 6.B and 6.C cover both means and methods of combat, namely weapons and weapon systems in the widest sense, as well as the way in which they are used.[278] Rules 6.B and 6.C prohibit the use of methods or means that cannot be directed at a specific military objective, or whose effects cannot be limited as required by IHL, *in the circumstances ruling at the time of their use, including in the manner in which they are used*.[279] The circumstances ruling at the time of the use of a particular means or method include how vulnerable the composition of the surrounding natural environment is to certain means or methods of warfare (such as fire),[280] weather and climate conditions,[281] and the extent to which measures put in place by the party carrying out the attack can limit the effects of the means and methods of warfare used, and, in doing so, protect the natural environment.

110. The use of the following weapons, among others, has been cited in practice as being indiscriminate: chemical, biological and nuclear weapons; anti-personnel landmines; mines; poison; explosives discharged from balloons; V-1 and V-2 rockets; cluster bombs; booby traps; Scud missiles; Katyusha rockets; incendiary weapons; and environmental modification techniques. It should be noted, however, that it is not always clear from the statements made whether the weapon in question is considered indiscriminate by nature or whether the use of the weapon was only deemed indiscriminate in the circumstances, and there is no agreement that *all* of these weapons are indiscriminate by nature.[282]

111. An attack which is intended, or may be expected, to cause "widespread, long-term and severe" damage to the natural environment, of the kind prohibited by Articles 35(3) and 55 of Additional Protocol I and Rule 45 of the ICRC Study on Customary International Humanitarian Law,283 is precisely an attack which cannot be "limited as required by IHL" and, therefore, will simultaneously violate the prohibition of indiscriminate attacks.[284] This is of relevance for Rule 6.C.

112. Finally, Rule 6.C prohibits the employment of methods or means whose effects may be expected to escape in time or space from the control of those who employ them in the circumstances ruling at the time. This includes the poisoning of wells, the use of biological agents and – depending on how they are used – the use of water or fire.[285]

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[276] Additional Protocol I (1977), Arts 48 and 52(2); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, Rule 1, p. 3: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule1 and related practice; and *ibid.*, Rule 7, p. 25, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule7 and related practice.

[277] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, commentary on Rule 12, p. 43: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule12.

[278] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 621, para. 1957.

[279] See, in this respect, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Report of Committee III, Vol. XV, CDDH/215/Rev.l, p. 274; ICTY, *Prosecutor* v. *Milan Martić*, Appeals Chamber, Judgment, 8 October 2008, para. 247; and L. Gisel, "The use of explosive weapons in densely populated areas and the prohibition of indiscriminate attacks", in E. Greppi (ed.), *Conduct of Hostilities: The Practice, the Law and the Future*, Franco Angeli, Milan, 2015, p. 103.

[280] See e.g. UN General Assembly, *Report of the Secretary-General on napalm and other incendiary weapons and all aspects of their possible use*, UN Doc. A/8803, 9 October 1972, p. 50, para. 186: "When there is a difference between the susceptibility to fire of military and civilian targets, it is commonly to the detriment of the latter."

[281] Weather and climate can affect the ability to limit the effects of an attack depending on the means or method used, e.g. fire in very dry weather or climate. It may also affect the ability to direct the means or method employed in the attack. See e.g. M.N. Schmitt, "Precision attack and international humanitarian law", *International Review of the Red Cross*, Vol. 87, No. 859, September 2005, p. 449: "Many weapon systems are undeliverable (or degraded) during night time or in poor weather."

[282] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 71, pp. 249–250: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule71. Among the weapons listed, see the following rules in the present Guidelines: Rule 3.B on environmental modification techniques; Rule 19 on poison or poisoned weapons; Rule 20 on biological weapons; Rule 21 on chemical weapons; Rule 23 on incendiary weapons; Rule 24 on landmines; and Rule 25 on explosive remnants of war, including cluster munitions.

[283] For further details on this prohibition, see Rule 2 of the present Guidelines.

[284] See Bothe/Partsch/Solf, *New Rules for Victims of Armed Conflicts*, commentary on Article 51 of Additional Protocol I, p. 347, para. 2.5.2.3; and Oeter, "Methods and means of combat", p. 194, para. 458.4.

[285] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 623, para. 1963; Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, commentary on Rule 12, p. 43: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule12; M.N. Schmitt, "War, technology and the law of armed conflict", in A.M. Helm (ed.), *The Law of War in the 21st Century: Weaponry and the Use of Force*, International Law Studies, Vol. 82, 2006, pp. 137–182, p. 140; Gisel, "The use of explosive weapons in densely populated areas and the prohibition of indiscriminate attacks",

The prohibitions of poisoning wells and of using biological agents protect the parts of the natural environment such as the water and wildlife that live in, or depend on, the wells, and the species that may be harmed by the biological agent in question.

113. With regard to the use of water, the difficulty of directing water, and its potential indiscriminate effects, are illustrated by the Allied bombing of Germany's Möhne and Eder dams in 1943.[286] The bombing released water in such force and volume that it could not be directed at specific weapons-industry targets downstream but rather caused extensive flooding that killed 1,300 people, damaged 3,000 hectares of cultivated land and killed 6,500 head of livestock, the latter two of which notably constituted parts of the natural environment.[287]

p. 101. Of course, biological weapons are prohibited in and of themselves; see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 73, p. 256: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule73; and Rule 20 of the present Guidelines. The use of poison is also prohibited as such; see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 72, p. 251: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule72; and Rule 19 of the present Guidelines.

[286] Today, dams are also protected as installations containing dangerous forces; see Rule 11 of the present Guidelines.

[287] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 667, para. 2143. See also Rule 11 of the present Guidelines regarding works and installations containing dangerous forces.

Rule 7 – Proportionality in attack

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.

Commentary

114. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[288] The application of the general customary principle of proportionality specifically to the natural environment is articulated in Rule 43.C of the ICRC Study on Customary International Humanitarian Law. The principle of proportionality is codified more generally in Article 51(5)(b) of the 1977 Additional Protocol I (and the corresponding Rule 14 of the ICRC Study on Customary International Humanitarian Law).

115. On the basis of its civilian character, any part of the natural environment that is not a military objective must be protected not only against direct attack, but also against "incidental damage", which must not be excessive – alone or in combination with other incidental civilian harm – in relation to the concrete and direct military advantage anticipated from an attack against a military objective. The application of this principle of proportionality to incidental damage to the natural environment is expressly stated in the 1994 *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*.[289] It was applied by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia in 2000[290] and has been emphasized by the ICJ, which stated in its 1996 Nuclear Weapons Advisory Opinion that "States must take environmental considerations into account when assessing what is ... 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 ... proportionality."[291]

116. This rule and the prohibition of widespread, long-term and severe damage expressed in Articles 35(3) and 55 of Additional Protocol I[292] operate differently, and both must be complied with for the attack to be lawful. While the latter prohibits only those attacks that are intended or expected to cause widespread, long-term and severe damage to the natural environment, the present rule may render unlawful an attack which would cause damage to the natural environment of lesser gravity or magnitude. Conversely, while this rule will render attacks unlawful depending on the anticipated military advantage, the prohibition of widespread, long-term and severe damage is absolute. Put another way, attacks will be unlawful under this rule when incidental damage to the natural environment – although it is not widespread, long-term and severe – is excessive in comparison with the direct and concrete military advantage anticipated. This could be the case in particular when the military advantage anticipated is not sufficiently substantial or when the incidental harm to the natural environment is significant even if not reaching the threshold of widespread, long-term and severe.

Incidental damage to the natural environment

117. For the protection of the natural environment against incidental damage, it is particularly important that, when assessing the anticipated concrete and direct military advantage against the expected incidental civilian harm, account is taken of the attack's indirect effects (also referred to as "reverberating", "knock-on", "cascading" or "second, third or higher-order" effects) on the civilian population and civilian objects that are reasonably foreseeable based on an assessment of information from all sources available to the party at the relevant time. This obligation derives from the wording of Article 51(5)(b) of Additional Protocol I ("may be expected" and the absence

[288] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 43.C and commentary, p. 145: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43 and related practice. For the general rule on proportionality, see *ibid.*, commentary on Rule 14, p. 46: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule14.

[289] Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 9, para. 13(c). The application of the principle of proportionality to incidental damage to the natural environment is also recognized in Schmitt/Garraway/Dinstein (eds), *The Manual on the Law of Non-International Armed Conflict*, Rule 4.2.4, p. 59; HPCR, *Manual on International Law Applicable to Air and Missile Warfare*, commentary on Rules 88–89, pp. 246–251; and Schmitt/Vihul (eds), *Tallinn Manual*, Rule 83, p. 232.

[290] ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, para. 22.

[291] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 30. For other examples of practice related to the application of the principle of proportionality to the natural environment, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 43.C, pp. 145–146: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43. See also ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 362.

[292] This threshold is also reflected in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Rule 45, p. 151: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45. Regarding the prohibition of widespread, long-term and severe damage set out in these provisions, see Rule 2 of the present Guidelines.

of the qualifier "direct" with regard to the incidental civilian harm), as well as the context and humanitarian purpose of the rule.[293] It is furthermore reflected in State practice.[294]

118. The scope of the obligation to take into account the indirect effects of an attack, and the related question as to when an indirect effect is reasonably foreseeable, will depend on the facts of each case based on an assessment of information from all sources available at the relevant time,[295] and informed by past practices and empirical data.[296] For example, depending on how the attack is carried out, it may be foreseeable that an attack on a facility containing chemical substances may cause the release of such chemicals into the surrounding natural environment.[297] Depending on the circumstances, it may also be foreseeable that an attack expected to affect the electricity supply, for example by damaging a power plant, could disrupt the sewage or wastewater treatment systems that rely on electricity and, in turn, harm the quality of the water and soil by polluting them with untreated wastewater.[298] In addition, as information regarding the long-term risks attendant to disruption of ecosystems increases, so too does the foreseeability of indirect effects, and assessments of excessiveness of incidental damage to the natural environment must take such information into account.[299]

119. The UN Environment Assembly has noted that the long-term consequences of environmental degradation resulting from pollution caused by armed conflict "include, inter alia, the loss of biodiversity, the loss of crops or livestock, and lack of access to clean water and agricultural land, and the negative and sometimes irreversible impacts on ecosystem services and their impact on sustainable recovery, contributing to further forced displacement related to environmental factors".[300] These examples relate generally to the effects of armed conflict on the natural environment rather than the effects of attacks. However, to the extent that an attack could foreseeably result in direct or indirect effects such as these, they need to be taken into account when weighing the anticipated concrete and direct military advantage against the expected incidental damage.

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[293] See ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts: Recommitting to Protection in Armed Conflict on the 70th Anniversary of the Geneva Conventions*, pp. 18 and 68; ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", pp. 352–354; Schmitt/Vihul (eds), *Tallinn Manual*, commentary on Rule 113, p. 472, para. 6; M. Sassòli and L. Cameron, "The protection of civilian objects: Current state of the law and issues *de lege ferenda*", in N. Ronzitti and G. Venturini (eds), *The Law of Air Warfare: Contemporary Issues*, Eleven International, The Hague, 2006, p. 65; L. Gisel, "Relevant incidental harm for the proportionality principle", in ICRC/College of Europe, *Urban Warfare*, Proceedings of 16th Bruges Colloquium, 15–16 October 2015, *Collegium*, No. 46, Autumn 2016, pp. 125–127; I. Robinson and E. Nohle, "Proportionality and precautions in attack: The reverberating effects of using explosive weapons in populated areas", *International Review of the Red Cross*, Vol. 98, No. 1, April 2016, pp. 112–116; and Gillard, *Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment*, pp. 18–19, paras 62–64.

[294] For an overview of relevant State practice, see L. Gisel (ed.), *The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law*, Report of the International Expert Meeting, Quebec, 22–23 June 2016, ICRC, Geneva, 2018, pp. 43–51. See also Robinson/Nohle, "Proportionality and precautions in attack: The reverberating effects of using explosive weapons in populated areas", pp. 115–116.

[295] See fn. 145 above.

[296] For some of the parameters that can be taken into account when determining the scope of the obligation to take into account the indirect effects of an attack, see Robinson/Nohle, "Proportionality and precautions in attack: The reverberating effects of using explosive weapons in populated areas", pp. 117–131.

[297] For example, the bombing of the Pančevo industrial complex and of a petroleum refinery in Novi Sad by NATO forces during the war in Kosovo in 1999 led to the release of some 80,000 tons of crude oil into the soil and of many tons of other toxic substances: Hulme, *War Torn Environment*, p. 188. See also UNEP/United Nations Centre for Human Settlements (UNCHS), *The Kosovo Conflict: Consequences for the Environment & Human Settlements*, UNEP/UNCHS, Nairobi, 1999, pp. 32–38.

[298] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 30. For an example of environmental contamination due to electricity shortages during conflicts, see UNEP, *Environmental Assessment of the Gaza Strip following the escalation of hostilities in December 2008–January 2009*, UNEP, Nairobi, 2009, p. 39:

> Sewage systems were impacted in several ways during the hostilities. First, as the electricity supply collapsed, transfer pumps ceased to function, resulting in sewage being diverted to the nearest available lagoons, including infiltration lagoons. Second, the limited treatment that had been taking place in sewage treatment plants also ceased due to electricity shortages. The effluent leaving sewage treatment plants to be disposed of in the sea or by infiltration in the groundwater was therefore entirely untreated.

[299] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 31–32. Furthermore, see para. 124 of the present Guidelines regarding the "precautionary principle" of international environmental law and its relevance to the obligation to take proper precautionary measures to prevent undue damage. Information regarding conflict-related environmental damage is increasingly available as methods develop for documenting and monitoring this damage; see e.g. W. Zwijnenburg *et al.*, "Solving the jigsaw of conflict-related environmental damage: Utilizing open-source analysis to improve research into environmental health risks", *Journal of Public Health*, Vol. 42, No. 3, November 2019.

[300] UN Environment Assembly, Res. 3/1, Pollution mitigation and control in areas affected by armed conflict or terrorism, 30 January 2018, preambular para. 13.

Excessiveness in relation to the concrete and direct military advantage

120. With respect to the concept of "concrete and direct military advantage", the term "military" has traditionally been understood as gaining ground and annihilating or weakening the enemy armed forces,[301] and as noted in the commentary on Rule 5 of the present Guidelines, it excludes advantages that would be merely political, social, psychological, moral, economic or financial in nature.[302] In addition to this requirement, the terms "concrete and direct" mean that the anticipated advantage "should be substantial and relatively close, and that advantages which are hardly perceptible and those which appear only in the long term should be disregarded".[303] Finally, the advantage anticipated from the attack as a whole, rather than from isolated parts of the attack, is to be taken into account in the proportionality assessment.[304]

121. There is no precise formula to apply when assigning relative values to the concrete and direct military advantage anticipated and the incidental civilian damage that may be expected, and assessing whether the latter is excessive. The application of the principle of proportionality is highly fact dependent.[305] It is clear that the weight given to various types of incidental civilian damage will vary. For example, damage to the natural environment in the middle of an uninhabited desert will carry much less weight than damage to a natural water reservoir used by villagers for drinking or irrigation.

122. Bearing in mind this appreciation of the highly context-dependent assessment of when damage will be "excessive" (and therefore unlawfully disproportionate), an example of disproportionate incidental damage to the natural environment would be the burning of an entire forest to eliminate a single, small enemy camp of minor importance.[306] To the extent that it constituted damage incidental to an attack, many experts considered that the pollution arising from the burning of oil fields and the deliberate spilling of millions of gallons of oil into the sea during the 1990–1991 Gulf War was excessive in relation to the military advantage that may have been anticipated, such as the creation of smoke to obscure Iraqi ground forces from coalition air operations or the hindering of a possible amphibious attack.[307] The damage to the natural environment in this case is reported to have included the contamination of 800 kilometres of coastline with oil slicks, severe air pollution throughout Kuwait, acid rain and spikes in the mortality rates of local wildlife, including certain endangered species.[308] More recently, during the conflict in Iraq in 2016 and 2017, reports indicate that the burning of oil wells – with wells alight for up to nine months – created dense black clouds stretching over tens of kilometres, caused tens of thousands of barrels of oil to flow into wadis forming at least 23 large lakes, and polluted extensive tracts of grazing land and dryland farming.309 The expected effects of attacks involving the burning of oil wells include serious environmental pollution, and these effects must be assessed against the military advantage that may have been anticipated (for example, to potentially obscure ground operations from the air).[310]

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[301] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 685, para. 2218.

[302] HPCR, *Manual on International Law Applicable to Air and Missile Warfare*, commentary on Rule 1(w), p. 36, para. 4; ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 364.

[303] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 684, para. 2209.

[304] See the following declarations and reservations made by States upon ratification of Additional Protocol I: Australia, 21 June 1991, para. 4; Belgium, 20 May 1986, para. 5; Canada, 20 November 1990, Comment regarding Article 51; France, 11 April 2001, para. 10; Germany, 14 February 1991, para. 5; Italy, 27 February 1986, para. 6; Netherlands, 26 June 1987, para. 5; New Zealand, 9 February 1988, para. 3; Spain, 21 April 1989, Comment regarding Article 51; and United Kingdom, 12 December 1977, para. (i). For a further discussion of the notion of an "attack as a whole", see Gisel (ed.), *The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law*, pp. 11–13.

[305] ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, paras 19–20; Gisel (ed.), *The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law*, pp. 52–65.

[306] See UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 13: "[B]urning an entire forest to reach a single minor target, for example, would be considered a disproportionate strategy in relation to the military gain."

[307] *Ibid.*; Dinstein, "Protection of the environment in international armed conflict", pp. 543–544; Schmitt, "Green war", p. 58.

[308] International Law and Policy Institute (ILPI), *Protection of the Natural Environment in Armed Conflict: An Empirical Study*, ILPI, Oslo, 2014, pp. 17–18.

[309] UNEP, *Technical Note – Environmental Issues in Areas Retaken from ISIL: Mosul, Iraq*, UNEP, Nairobi, 2017, pp. 6–9.

[310] See e.g. United States Department of Defense, "Final Report to Congress on the Conduct of the Persian Gulf War, Appendix O on the Role of the Law of War", p. 637; and Schmitt, "Green war", p. 53.

Rule 8 – Precautions

In the conduct of military operations, constant care must be taken to spare the civilian population, civilians and civilian objects, including the natural environment. All feasible precautions must be taken to avoid, and in any event to minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects, including the natural environment.

Commentary

123. The principle of precautions, which is stated here with the addition of an express reference to the natural environment, has been established as a rule of customary international law applicable in international and non-international armed conflicts with regard to any civilian object.[311] The application of the general principle of precautions specifically to the natural environment is articulated in the second clause of Rule 44 of the ICRC Study on Customary International Humanitarian Law.[312] As noted above, on the basis of its civilian character, any part of the natural environment that is not a military objective must be protected against incidental damage. The principle of precautions in attack is codified more generally in Article 57 of the 1977 Additional Protocol I.

124. As noted in the ICRC Study on Customary International Humanitarian Law, there is practice to the effect that lack of scientific certainty as to the effects on the environment of certain military operations does not absolve parties to a conflict from taking proper precautionary measures to prevent undue damage. As the potential effect on the environment will need to be assessed during the planning of an attack, the fact that there is bound to be some uncertainty as to its full impact on the environment means that the "precautionary principle" from international environmental law is of particular relevance to such an attack. The precautionary principle in environmental law has been gaining increasing recognition. There is, furthermore, practice to the effect that this environmental law principle applies in armed conflict. The study therefore concluded that lack of scientific certainty as to the effects on the natural environment of certain military operations does not absolve a party to the conflict from taking precautions.[313]

Constant care in the conduct of military operations

125. The principle of precautions encompasses a general obligation to take constant care to spare civilian objects (including the natural environment) in the conduct of military operations.[314] It operationalizes the obligation to employ methods or means of warfare with due regard to the protection and preservation of the natural environment, which is addressed in Rule 1 of the present Guidelines.[315]

126. The term "military operation" is broader than "attack" and should be understood to mean "any movements, manoeuvres and other activities whatsoever carried out by the armed forces with a view to combat".[316] This is an important distinction, as it means that constant care must be taken in view of the impact of military operations on the natural environment during, for example, troop movements or the establishment of military bases,[317] which do not *per se* constitute "attacks", but which can nevertheless cause significant incidental damage to the natural environment.

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[311] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 15 and commentary, p. 51: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15 and related practice.

[312] See *ibid.*, second sentence of Rule 44 and commentary, pp. 147 and 149–150: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44 and related practice.

[313] See *ibid.*, third sentence of Rule 44 and commentary, pp. 147 and 150: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44 and related practice.

[314] The constant care obligation is set out in Article 57(1) of Additional Protocol I and in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, first sentence of Rule 15, p. 51: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15.

[315] The due regard obligation is set out in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, first sentence of Rule 44, p. 147: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44. It is restated and discussed in Rule 1 of the present Guidelines; see the commentary on the latter regarding the interaction between these two rules.

[316] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 680, para. 2191; United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 5.32, fn. 187; Bothe/Partsch/Solf, *New Rules for Victims of Armed Conflicts*, pp. 325–326, para. 2.2.3, and p. 408, para. 2.8.2; ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 380.

[317] Despite the title of Article 57 of Additional Protocol I, there is no reason for the obligation to take constant care to be limited to the attacker, and it should be seen as applying also to the taking of precautions against the effects of attacks; see Boothby, *The Law of Targeting*, p. 119; and G. Corn and J.A. Schoettler, "Targeting and civilian risk mitigation: The essential role of precautionary measures", *Military Law Review*, Vol. 223, No. 4, January 2015, p. 832. See also Rule 9 of the present Guidelines.

127. This obligation requires all those involved in military operations to continuously bear in mind the effects of those operations on the civilian population, civilians and civilian objects, take steps to reduce those effects as much as possible and seek to avoid any that are unnecessary.[318] For instance, NATO has developed six Environmental Protection Standardization Agreements (STANAGs), which, among others, provide environmental planning guidelines for military activities, to which commanders should, where practicable, adhere.[319] Experience has also shown that it is important for parties to a conflict to take into consideration the risk that the use of hazardous substances in the operation of certain means of warfare may contaminate the ground and thereby impact food sources for animals.[320]

128. By contrast, certain obligations which flow from the principle of precautions are relevant especially when conducting attacks, and these are addressed below.

All feasible precautions

129. The meaning of the phrase "feasible precautions" has been interpreted by many States as being limited to those precautions which are practicable or practically possible, taking into account all circumstances ruling at the time, including humanitarian and military considerations.[321] The 1996 Amended Protocol II and 1980 Protocol III to the Convention on Certain Conventional Weapons (CCW) define the term similarly.[322] What precautions are feasible in given circumstances will therefore be highly fact specific and may vary depending on factors such as the military advantage sought by the operation, whether it is time sensitive, the terrain (whether man-made or natural), the situation and capabilities of the parties to the conflict, the resources, methods and means available, and the type, likelihood and severity of the expected incidental civilian harm, including harm to the natural environment.[323] Specifically with regard to incidental damage to the natural environment, the area expected to be affected and the scope of those effects, the fragility or vulnerability of the natural environment in that area, the expected severity of the damage and the expected duration of damage are elements of the humanitarian considerations to be taken into account in assessing the feasibility of a specific precaution.

130. It should also be noted that the mere fact of taking *some* precautionary measures would not necessarily be enough to satisfy this obligation as defined above; there is an obligation for parties to a conflict to take *all* those precautions that are feasible in the circumstances. As indicated by several States upon ratification of Additional Protocol I, feasible precautions must be based on an assessment of information from all sources available to them at the relevant time.[324] This requires parties to proactively seek out and collect reasonably available information.[325]

Specific precautions for attack

131. The following obligations are specific applications of the principle of precautions with regard to attacks. On the basis that the natural environment is civilian in character, these obligations provide general protection to any part of the natural environment that is not a military objective.

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[318] United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 5.32.1; Schmitt/Vihul (eds), *Tallinn Manual*, commentary on Rule 114, p. 476, para. 4; Oeter, "Methods and means of combat", p. 199; N. Neuman, "A precautionary tale: The theory and practice of precautions in attack", *Israel Yearbook on Human Rights*, Vol. 48, 2018, pp. 28–29.

[319] See e.g. NATO, STANAG 7141, *Joint NATO Doctrine for Environmental Protection during NATO-Led Military Activities*, pp. 2-1–2-3: "(f) Identify feasible mitigation measures, if applicable, to reduce the risk to the environment and to human health and safety. Consider alternative locations or activities that still achieve the military objective of the training or operation while reducing or eliminating the risk to the environment or human health and safety." For other environmental protection STANAGs, see https://www.natolibguides.info/Environment/NATO-Documents.

[320] For example, in Astana in Afghanistan, land on which the inhabitants grazed livestock was polluted for years by hazardous chemicals used to fire missiles, and this in turn exposed the local population to high risks: UNEP, Post-Conflict Branch, *Ground Contamination Assessment Report: Military Waste Storage Site, Astana, Afghanistan*, UNEP, Nairobi, 2006.

[321] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 15, p. 54: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule15.

[322] Amended Protocol II to the CCW (1996), Art. 3(10); Protocol III to the CCW (1980), Art. 1(5).

[323] ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", p. 374. This list is not exhaustive.

[324] See e.g. the declarations and reservations made upon ratification or signature of the 1977 Additional Protocol I by: Australia, 21 June 1991, para. 4; Ireland, 19 May 1999, para. 9; Italy, 27 February 1986, para. 5; Netherlands, 26 June 1987, para. 6; New Zealand, 9 February 1988, para. 2; and United Kingdom, 12 December 1977, para. D. France indicated this understanding specifically in relation to the environment: Declarations made upon ratification of the 1977 Additional Protocol I, 11 April 2001, para. 6.

[325] Gisel (ed.), *The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law*, p. 48; ICTY, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, para. 29; Russian Federation, *Application of IHL Rules: Regulations for the Armed Forces of the Russian Federation*, 2001, para. 131.

132. *Each party to the conflict must do everything feasible to verify that targets are military objectives, including that any part of the natural environment has become a military objective before it is attacked.*[326] For example, if a specific area of foliage has been identified as a military objective because it is understood to be obscuring the manoeuvre of opposing troops from view, efforts should be made to verify that the troops are in fact located in that area and that defoliation would offer a definite military advantage in the circumstances ruling at the time (for example, enable targeting that would otherwise not have been possible, or forcing them to retreat to a less advantageous area).

133. *All feasible precautions must be taken in the choice of means and methods of warfare with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects, including any part of the natural environment that is not a military objective.*[327] Parties could comply with this obligation by, for example, assessing the environmental impact of the weaponry to be used and using available alternative weaponry that reduces the risk of damage to specific parts of the natural environment concerned.[328]

134. *Each party to the conflict must do everything feasible to assess whether the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, including any part of the natural environment that is not a military objective, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.*[329] In this vein, prior assessments of the potential environmental impact of an attack, including the expected consequences of the weapons and ammunition used, must be conducted whenever feasible.330 When planning attacks in or around areas of major environmental importance or fragility, the mapping of these areas, for example by reference to existing resources such as the World Heritage List or IUCN's conservation databases, may also be conducted prior to the launching of an attack, if feasible, to assess the extent of the incidental damage likely to be caused to the natural environment as a result of the attack.

135. *Each party to the conflict must do everything feasible to cancel or suspend an attack if it becomes apparent that the target, including when it is a part of the natural environment, is not a military objective or that the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, including the natural environment, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.*[331] If it were to become apparent during an attack that a target such as a military warehouse – thought previously to be storing ammunition, for example – was instead storing toxic substances likely to leak and poison nearby water sources if the warehouse was to be bombed, thereby having a disproportionate impact on the natural environment relative to the military advantage anticipated, then everything feasible must be done to cancel or suspend such an attack.

136. *Unless circumstances do not permit, effective advance warning of attacks that may affect the natural environment should be given to allow for measures to safeguard it.* This is a recommendation rather than an obligation, as IHL requires that warning be given only for attacks which may affect the civilian population (rather than civilian objects).[332] However, it is still recommended to consider issuing warnings which would allow the safeguarding of the natural environment.[333] For example, if circumstances permit, giving a warning of an attack on an electricity network that – while also qualifying as a military objective – maintains a wastewater treatment system, may allow an opposing party to put in place a temporary generator to support some key sewage treatment facilities and thus avoid serious damage to the quality of water and soil in the area, even if such damage is not expected to affect the civilian population.

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[326] Additional Protocol I (1977), Art. 57(2)(a)(i); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 16, p. 55: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule16.

[327] Additional Protocol I (1977), Art. 57(2)(a)(ii); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 17, p. 56: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule17. See also *ibid.*, Rule 44, p. 147: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44.

[328] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 35.

[329] Additional Protocol I (1977), Art. 57(2)(a)(iii); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 18, p. 58: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule18.

[330] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 30. See also NATO, STANAG 7141, *Joint NATO Doctrine for Environmental Protection during NATO-Led Military Activities*; and United States Department of Defense, Finnish Ministry of Defence and Swedish Armed Forces, *Environmental Guidebook for Military Operations*, March 2008.

[331] Additional Protocol I (1977), Art. 57(2)(b); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 19, p. 60: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule19.

[332] Additional Protocol I (1977), Art. 57(2)(c); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 20, p. 62: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule20.

[333] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 35.

137. *When a choice is possible between several military objectives for obtaining a similar military advantage, the objective to be selected must be that the attack on which may be expected to cause the least danger to civilian lives and to civilian objects, including any part of the natural environment that is not a military objective.*[334] Parties to a conflict could comply with this obligation by selecting the military objective the furthest from particularly vulnerable parts of the natural environment, such as underground aquifers, sensitive natural habitats or endangered species.[335]

[334] Additional Protocol I (1977), Art. 57(3); Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 21, p. 65: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule21. Some States hold the view that the obligation applies only when the advantage is "the same".

[335] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 34.

Rule 9 – Passive precautions

Parties to the conflict must take all feasible precautions to protect civilian objects under their control, including the natural environment, against the effects of attacks.

Commentary

138. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[336] It reflects the obligation set forth in Article 58(c) of the 1977 Additional Protocol I. Contrary to Rules 5–8 of the present Guidelines, which impose obligations on parties carrying out attacks, this rule concerns measures to be taken by a party to the conflict to protect the natural environment under its control against the effects of enemy attacks. On the basis that the natural environment is civilian in character, this rule applies to any part of the natural environment that is not a military objective.

139. Even though it is addressed to parties to a conflict, this obligation may have to be implemented through measures taken in peacetime (that is to say, not only in times of conflict), notably when it comes to the choice of location of a fixed military installation.[337]

140. As discussed in the commentary on Rule 8 of the present Guidelines, lack of scientific certainty as to the effects on the natural environment of certain military operations does not absolve a party to a conflict from taking precautions.[338]

Feasible precautions

141. As noted in the commentary on Rule 8, the meaning of "feasible precautions" has been interpreted by States as being those precautions which are practicable or practically possible, taking into account all circumstances ruling at the time, including humanitarian and military considerations.[339] Numerous States have indicated that military commanders have to reach decisions concerning what precautions against the effects of attacks are practicable or practically possible on the basis of their assessment of the information from all sources available to them at the relevant time.[340] Such assessment will also have to take into account that States and other parties to a conflict owe this obligation not only to the natural environment, but also to civilians and other civilian objects under their control.

142. The transboundary, seemingly limitless nature of the natural environment means that parties to a conflict will in reality be "surrounded" by the natural environment at all times. Even considering that the obligation to take all feasible precautions to protect the natural environment is that of the party to the conflict under whose control it is, this raises the question as to how onerous the burden of taking such precautions can be in practice.

143. As the natural environment in its entirety is not a movable object in the traditional sense of the word (though, of course, certain parts of it, such as fauna,[341] may be movable), it cannot be completely "removed" from the vicinity of military objectives.[342] The fact that military operations will necessarily be surrounded by the natural environment does not, however, mean that precautions cannot be taken to protect it from differing degrees of harm. For example, when a choice is possible between stationing troops at several locations, all of which offer similar advantages *across the range of pertinent operational factors*, the location selected must be that which is expected to cause the least damage to civilian lives and civilian objects, including the natural environment, in the event that the location is attacked by opposing forces. Thus, given the choice between an open, uninhabited grassland and a zone of particular

[336] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 22 and commentary, p. 68: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule22 and related practice.

[337] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 692, para. 2244.

[338] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, third sentence of Rule 44 and commentary, p. 150: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44 and related practice.

[339] See fn. 321 above and related text.

[340] See fn. 145 above.

[341] While organized by private individuals and not a party to the conflict, see, for example, the removal of wild animals from a zoo in a theme park in Aleppo; S. Guynup, "How Syrian Zoo Animals Escaped a War-Ravaged City", *National Geographic*, 5 October 2017: https://www.nationalgeographic.com/news/2017/10/wildlife-watch-rescuing-animals-aleppo-syria-zoo/.

[342] For the obligation to remove civilian objects from the vicinity of military objectives to the extent feasible, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 24, p. 74: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule24.

biological diversity or fragility, a decision as to where to station troops should consider whether hostilities in the latter area will entail more danger to the natural environment than in the grassland area.[343]

Areas of major ecological importance or particular fragility

144. Hostilities may have particularly disastrous consequences when they occur in zones of major ecological importance or particular fragility.[344] Taking all feasible precautions to protect the natural environment against the effects of attacks is therefore particularly pertinent for parties to conflicts who control territory featuring such areas; special consideration should be given to the protection of those parts of the natural environment that are especially vulnerable to the adverse consequences of hostilities.[345] Such areas include groundwater aquifers, national parks and endangered species habitats. For example, the consequences of conflict in the Democratic Republic of the Congo on Virunga National Park, which contains some of the richest biodiversity in Africa, are well documented, and include the destruction of unique ecosystems and threats to species.[346]

145. Feasible precautions in this regard could include, for instance, informing opposing parties of the existence and location of and ongoing conservation efforts in areas of particular ecological significance or fragility.[347] Parties could furthermore refrain from locating troops or military material in these areas. In this vein, the ICRC has proposed that one way of protecting important or fragile areas could be to formally place them off-limits to all military activity.[348] Similar proposals have been made by the ILC,[349] UNEP[350] and IUCN.[351] They were also considered during the drafting of the 1977 Additional Protocols.[352] A similar system of specially protected areas already exists in relation to cultural property and to cultural and natural heritage, and such areas may include national parks.[353]

146. According to the ICRC proposal, such areas should be delineated and designated as demilitarized zones before an armed conflict occurs, or at the latest when the fighting breaks out, from which all military action and the presence

[343] For practices indicating how potential damage to the natural environment could be incorporated in the planning of camps, see e.g. NATO, STANAG 2582, *Environmental Protection Best Practices and Standards for Military Camps in NATO Operations*, Annex H-1–H-3.

[344] Regarding such consequences, see e.g. UNEP, *Lebanon: Post-Conflict Environmental Assessment*, UNEP, Nairobi, 2007, p. 134; UNEP, *The Democratic Republic of the Congo: Post-Conflict Environmental Assessment: Synthesis for Policy Makers*, UNEP, Nairobi, 2011, p. 26; and UNEP/UNCHS, *The Kosovo Conflict: Consequences for the Environment & Human Settlements*, pp. 60–62. For an assessment of the effects of conflict on Borjomi-Kharagauli National Park in Georgia and maritime fauna in the Gulf, see ILPI, *Protection of the Natural Environment in Armed Conflict: An Empirical Study*, pp. 29–31 and 17–18, respectively. Regarding the effects of conflict on wildlife habitats, see K.M. Gaynor *et al.*, "War and wildlife: Linking armed conflict to conservation", *Frontiers in Ecology and the Environment*, Vol. 14, No. 10, December 2016, pp. 533–542.

[345] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 43–44.

[346] UNEP, *The Democratic Republic of Congo: Post-Conflict Environmental Assessment: Synthesis for Policy Makers*, p. 26; ICRC, *Strengthening Legal Protection for Victims of Armed Conflicts*, p. 17.

[347] For example, during armed conflict in the Democratic Republic of the Congo, the government conservation department communicated with non-state armed groups regarding the maintenance of conservation efforts and protection of national parks. This communication was conducted with coordination support from conservation organizations, as well as from UNESCO and the United Nations Foundation. For further details, see J. Shambaugh, J. Oglethorpe and R. Ham, *The Trampled Grass: Mitigating the Impacts of Armed Conflict on the Environment*, Biodiversity Support Program, Washington, D.C., 2001, p. 48.

[348] At the 33rd International Conference of the Red Cross and Red Crescent, Geneva, December 2019, the ICRC promoted a model pledge that encouraged States to designate as demilitarized zones areas considered particularly vulnerable or important from an environmental standpoint. Burkina Faso subsequently pledged to do so. See also ICRC, *Strengthening Legal Protection for Victims of Armed Conflicts*, pp. 17–19; and Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 43–44.

[349] See the positions of States on the ILC's proposal to include a draft principle on the establishment of protected zones for areas of major ecological importance in the context of its work on the protection of the environment in relation to armed conflicts: Statements before the Sixth Committee of the UN General Assembly of Austria, 70th session, Agenda item 83, 9 November 2015; El Salvador, 70th session, Agenda item 83, 9–11 November 2015; Iran, 70th session, Agenda item 83, 10 November 2015; Italy, 70th session, Agenda item 81, 6 November 2015; Lebanon, 70th session, Agenda item 83, 10 November 2015; Norway, on behalf of the Nordic countries, 70th session, Agenda item 83, 9 November 2015; Russian Federation, 73rd session, Agenda item 82, 31 October 2018; Switzerland, 68th session, Agenda item 81, 4 November 2013 and 70th session, Agenda item 83, 11 November 2015; and United States, 70th session, Agenda item 83, 10 November 2015.

[350] UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 54.

[351] IUCN, Draft Convention on the Prohibition of Hostile Military Activities in Protected Areas (1996).

[352] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 664, paras 2138–2139.

[353] The 1999 Second Protocol to the Hague Convention for the Protection of Cultural Property, which entered into force on 9 March 2004, establishes a system of enhanced protection under which cultural property meeting certain conditions is entered on a list, and parties to the Protocol undertake never to use it for military purposes or to shield military sites. See also World Heritage Convention (1972), Arts 6(3) and 11(4), under which listed cultural and natural heritage sites are protected from direct and indirect damage during armed conflict. Heritage protected under this Convention can notably include sites of ecological significance: for example, a number of national parks in the Democratic Republic of the Congo and the Central African Republic are on the "List of World Heritage in Danger".

of combatants and military material are barred. Indeed, although no rule of IHL currently exists to confer internationally recognized protection on specific natural areas, IHL does permit the establishment of demilitarized zones by agreement between the parties to a conflict.[354]

[354] For further details regarding agreements that can be made under IHL to protect the natural environment, see Rule 17 of the present Guidelines. On the use of demilitarized zones to protect the natural environment, see also Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 44–45.

Section 2. Protection afforded to the natural environment by the rules on specially protected objects other than the natural environment

Rule 10 – Prohibitions regarding objects indispensable to the survival of the civilian population

Attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population is prohibited, including when such objects are part of the natural environment.

Commentary

147. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[355] The customary rule is informed by the obligations set forth in Article 54(2) of the 1977 Additional Protocol I and Article 14 of the 1977 Additional Protocol II. These provisions build on the principle prohibiting starvation of the civilian population by prohibiting the most usual ways in which starvation is brought about.[356]

Attacking, destroying, removing or rendering useless

148. The verbs "attack", "destroy", "remove" and "render useless" are used in the alternative to indicate a broad prohibition covering acts committed both in offence and in defence. It includes the pollution of water sources with chemical or other agents, rendering them useless, or the destruction of crops with defoliants.[357]

Objects protected

149. This rule provides both direct and indirect protection to the natural environment, which can suffer significant degradation when objects indispensable to the survival of the civilian population are targeted.[358]

150. Direct protection is afforded to the natural environment when an object specifically protected by this rule – i.e. an object indispensable to the survival of the civilian population – is also a part of the natural environment. Certain objects indispensable to the survival of the civilian population are expressly identified by the ICRC's 1987 commentary on Article 55 of Additional Protocol I as parts of the natural environment: foodstuffs, agricultural areas, drinking water and livestock.[359] These are thus directly protected by this rule. This direct protection was applied by the Eritrea-Ethiopia Claims Commission in its finding that Ethiopia's bombing of Harsile water reservoir in Eritrea in 1999 and 2000 was a violation of Article 54(2) of Additional Protocol I, which the Commission held to be part of

[355] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 54 and commentary, p. 189: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule54 and related practice.

[356] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 655, para. 2098, and p. 1458, para. 4800. Objects indispensable to the survival of the civilian population include "foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works" (Additional Protocol I, Art. 54(2)) and can also include medicine, clothing, bedding and means of shelter. See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 54, p. 193: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule54; and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 655, paras 2102–2103, and p. 1458, paras 4803–4805.

[357] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 655, para. 2101.

[358] This concern was expressed, albeit in broader terms, in UN Environment Assembly, Res. 3/1, Pollution mitigation and control in areas affected by armed conflict or terrorism, 30 January 2018, preambular para. 12: "*Expressing* its grave concern regarding pollution and environmental degradation caused by armed conflict or terrorism through the targeting of natural resources, vital civilian infrastructure, including water filtration facilities, sanitation and electricity networks, and residential properties". For a database recording the alleged targeting of environmental infrastructure (which in some instances may constitute objects indispensable to the survival of the civilian population) in the context of armed conflicts in the Middle East and North Africa, see *Targeting of Infrastructure in the Middle East: Environment, Conflict, and Law*, a project of Duke University's Nicholas School of the Environment: https://sites.nicholas.duke.edu/time/maps/.

[359] For recognition of such objects as indispensable to the survival of the civilian population, see Additional Protocol I, Article 54(2); and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 655, para. 2102. For identification of such objects as constituent parts of the natural environment, see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 662, para. 2126. See also Henckaerts/Constantin, "Protection of the natural environment", p. 476, which states regarding rules protecting objects indispensable to the survival of the civilian population that "[t]he relevance of these rules for the natural environment is self-evident, as they protect agricultural areas, drinking water supplies, and livestock, which are constituent elements of the natural environment".

customary international law at the time of the bombing.[360] Harsile water reservoir was both a drinking water installation and a supply of drinking water: although the man-made elements of an installation, which are protected as objects indispensable to the survival of the civilian population, do not form part of the natural environment, the drinking water itself is a part of the natural environment and is also protected by this rule.

151. More recent examples also illustrate the importance of the direct protection this rule may provide to the natural environment. UNEP has reported that in 2014, hundreds of square kilometres of agricultural land were flooded by a non-state party to the conflict in Iraq using the Fallujah barrage water-diversion structure, causing serious degradation to the land as well as the displacement of thousands of people.361 Reports also indicate that in 2015–2016 parties to the conflict in Yemen damaged multiple sites of agricultural land, which itself is estimated to cover less than 3 per cent of Yemen's land surface, as well as a number of water-diversion structures.362 This is reported to have contributed to decreased land cultivation, reduced crop yields and diminished food availability for the local population. Reports further indicated that these effects were distinctly felt by women and girls.[363] The agricultural land and water installations may have been directly protected by this rule, although a full analysis would need to assess whether all conditions for the application of the rule were fulfilled in these specific examples.

152. Indirect protection of the natural environment is afforded by this rule when the attack, destruction, removal or rendering useless of an object indispensable to the survival of the civilian population that does *not* form part of the natural environment would nevertheless have a negative impact on the natural environment. For example, a man-made irrigation installation protected by this rule does not form part of the natural environment, but its operation may be a lynchpin that sustains the flora and fauna of an otherwise arid area of land, which is indispensable to the survival of the civilian population. The targeting of such an object could therefore disrupt the ecosystem dependent on the irrigation installation for its water supply, and thus negatively impact the natural environment.[364] More generally, attacks on objects indispensable to the survival of the civilian population can also cause large-scale population displacement, which – as displaced communities seek shelter, fuel and alternative means of income – can in turn have effects on the natural environment ranging from the deforestation of biodiverse areas to wildlife poaching.[365] Thus, in complement to this rule's primary purpose of protecting the civilian population, its implications for the indirect protection of the natural environment can be wide-ranging.

Specific purpose

153. Rule 10 applies to the natural environment the prohibition of attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population. According to Article 54(2) of Additional Protocol I, this is prohibited when done "for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive". Upon ratification of Additional Protocol I, France and the United Kingdom stated that this provision did not apply to attacks that lacked such specific purpose. As noted in the ICRC Study on Customary International Humanitarian Law, "[s]everal military manuals also specify that in order to be illegal, the intent of the attack has to be to prevent the civilian population from being supplied. Most military manuals, however, do not indicate such a requirement and prohibit attacks against objects indispensable to the survival of the civilian population as such. This is also the case with much of the national legislation which makes it an offence to violate this rule."[366] This should inform the understanding of Rule 10.

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[360] Eritrea-Ethiopia Claims Commission, Western Front, Aerial Bombardment and Related Claims, Eritrea's Claims 1, 3, 5, 9–13, 14, 21, 25 & 26, Partial Award, 19 December 2005, paras 98–105.

[361] UNEP, *Technical Note – Environmental Issues in Areas Retaken from ISIL: Mosul, Iraq*, pp. 3 and 21–22.

[362] M. Mundy, *The Strategies of the Coalition in the Yemen War: Aerial Bombardment and Food War*, World Peace Foundation, October 2018, pp. 12–16.

[363] United Nations Population Fund, "Yemen's deadly cholera outbreak puts pregnant women in danger", 21 July 2017: https://www.unfpa.org/news/yemens-deadly-cholera-outbreak-puts-pregnant-women-danger; L. Nimmo, "International Women's Day 2020: Women, war and water in Yemen" (blog), Conflict and Environment Observatory, 6 March 2020.

[364] Such foreseeable effects must form part of a proportionality assessment; see Rule 7 of the present Guidelines.

[365] Regarding the consequences of population displacement for the natural environment, see e.g. UNEP, *The Democratic Republic of the Congo: Post-Conflict Environmental Assessment: Synthesis for Policy Makers*, p. 26; UNEP, *Rwanda: From Post-Conflict to Environmentally Sustainable Development*, UNEP, Nairobi, 2011, p. 66; UNEP, *Environmental Considerations of Human Displacement in Liberia: A Guide for Decision-Makers and Practitioners*, UNEP, Nairobi, 2006; and UNEP, *Post-Conflict Environmental Assessment – Albania*, UNEP, Nairobi, 2000, pp. 38–46. See also the section on the environmental effects of human displacement in ILC, *Second report by Special Rapporteur Maria Lehto*, pp. 20–23; and ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), Principle 8 ("Human displacement") and commentary, p. 232.

[366] Henckaerts/Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. I, commentary on Rule 54, p. 190 (footnotes omitted): https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule54.

Exceptions to the prohibition

154. There are two exceptions to the prohibition on attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population. Rule 10 is to be understood in light of these exceptions.[367]

155. The first exception, which is found in Additional Protocol I, is based on the consideration that these objects can be attacked, destroyed, removed or rendered useless if they qualify as military objectives, but only provided that this may not be expected to cause starvation among the civilian population or force its movement.[368]

156. The second exception consists of the so-called "scorched earth policy" applied in defence of national territory against invasion, which is allowed under Additional Protocol I under specific conditions. A party to a conflict may destroy, remove or render useless objects indispensable to the survival of the civilian population under its own control within its own territory, if required by imperative military necessity.[369] According to the ICRC Study on Customary International Humanitarian Law, it is doubtful, however, whether the exception of scorched earth policy applies to non-international armed conflicts because it does not feature in Article 14 of Additional Protocol II.[370] It should be noted that there are diverging views on this. Scorched earth tactics have reportedly been used during recent conflict in Iraq, where a retreating belligerent sabotaged wells, chopped down or set fire to orchards and burned oil wells.[371]

[367] *Ibid.*, pp. 192–193. For the view that Rule 54 should have included an explicit reference to the exceptions provided in Article 54 of the 1977 Additional Protocol I, see G.H. Aldrich, "Customary International Humanitarian Law – An Interpretation on behalf of the International Committee of the Red Cross", *British Yearbook of International Law*, Vol. 76, No. 1, 2005, p. 517. See also J.M. Henckaerts, ''Customary International Humanitarian Law – A rejoinder to Judge Aldrich'', *ibid.*, pp. 527 and 528.

[368] See Additional Protocol I, Art. 54(3). See also Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 1459, para. 4807; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, commentary on Rule 54, p. 192: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule54.

[369] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 655, para. 2101, and p. 658, paras 2118–2119, as well as pp. 604–605, paras 1888 and 1890.

[370] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 54, p. 193: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule54.

[371] W. Zwijnenburg and F. Postma, *Living under a Black Sky: Conflict Pollution and Environmental Health Concerns in Iraq*, PAX, Utrecht, November 2017, pp. 4, 8 and 20.

Rule 11 – Prohibitions regarding works and installations containing dangerous forces

A. Particular care must be taken if works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, and other installations located at or in their vicinity are attacked, in order to avoid the release of dangerous forces and consequent severe losses among the civilian population.

B.

i. For States party to Additional Protocol I, works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, may not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population, subject to the exceptions specified in Article 56(2) of the Protocol. Other military objectives located at or in the vicinity of these works or installations may not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.

ii. For States party to Protocol II additional to the Geneva Conventions (Additional Protocol II) and non-state actors that are party to armed conflicts to which the Protocol applies, works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, may not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.

Commentary

157. Rule 11.A has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[372] Rule 11.B.i reflects Article 56(1) of the 1977 Additional Protocol I and is binding between parties to this Protocol in situations of international armed conflict, subject to the exceptions set down in Article 56(2). Rule 11.B.ii is a restatement of Article 15 of the 1977 Additional Protocol II and must be complied with by parties to that Protocol, as well as by non-state actors that are party to non-international armed conflicts to which the Protocol applies.[373]

The difference between Rule 11.A and Rule 11.B

158. Rule 11.A and Rule 11.B both cover "attacks", as understood for the purposes of the conduct of hostilities, namely "acts of violence against the adversary, whether in offence or in defence".[374] In addition, works and installations containing dangerous forces remain protected by all the other relevant IHL rules, including with regard to operations other than attacks, such as the obligation to take constant care to spare the civilian population, civilians and civilian objects in the conduct of military operations.[375]

159. Rule 11.A requires parties to a conflict to take "particular care" when attacking works or installations containing dangerous forces. For its part, Rule 11.B is stronger in that it outright prohibits such attacks if they may cause the release of dangerous forces and consequent severe losses among the civilian population. Thus, even when such works or installations become military objectives,[376] they nevertheless cannot be targeted when an attack may cause

[372] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 42 and commentary, p. 139: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule42 and related practice.

[373] On the scope of application of Additional Protocol II, see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 33–56.

[374] Additional Protocol I (1977), Art. 49. This refers to "combat action"; destructive acts undertaken by a belligerent in its own territory would not comply with the definition of "attack" as such acts are not mounted against the adversary: Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 603, para. 1880, and p. 605, para. 1890.

[375] See Rule 8 of the present Guidelines. This point is also recalled in Additional Protocol I (1977), Art. 56(3).

[376] In the sense of the definition of military objectives in Additional Protocol I (1977), Art. 52; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 8, p. 29: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule8.

severe losses among the civilian population because of the release of dangerous forces,[377] subject to the three exceptions in situations of international armed conflict specified in Article 56(2) of Additional Protocol I.

160. For the purposes of Rule 11.A, taking particular care when attacking works and installations containing dangerous forces will involve recognizing the special peril inherent in any such attack by conducting an assessment under the principles of proportionality and precautions that is sensitive to the uniquely high risk of severe losses involved in such attacks and by taking all necessary precautionary measures.[378] Such measures must ensure that assessments of what precautions are "feasible" consider the risk of particularly acute humanitarian consequences[379] and could involve, for example, requiring that a higher or elevated level of command take the decision to launch such an attack.[380]

161. For the purposes of Rule 11.B, which applies only to States party to Additional Protocol I, to States party to Additional Protocol II and to non-state actors that are party to armed conflicts to which Additional Protocol II applies, determining when an attack is prohibited will depend on whether losses among the civilian population may be severe. This assessment must be made in good faith, on the basis of objective elements, such as the proximity of inhabited areas, population density, the specificities of the surrounding land, the amount of dangerous forces expected to be released by the attack, and – for nuclear electrical generating stations in particular – the potentially decades-long duration of the adverse effects of such forces.[381] In this vein, and given the intrinsic dependence of civilian populations on the natural environment, it will be necessary in assessing the severity of the impact to consider the extent to which the release of dangerous forces would damage the natural environment's capacity to sustain the life of the civilian population.[382]

Works and installations containing dangerous forces

162. Both Rule 11.A and Rule 11.B apply specifically to three types of works and installations containing dangerous forces: dams, dykes and nuclear electrical generating stations.[383] The ICRC furthermore recommends that these rules be applied to other installations containing dangerous forces, such as chemical plants and petroleum refineries.[384] For example, in 2017 shelling by parties to the conflict in Ukraine around large water-treatment facilities storing liquified chlorine gas prompted experts to raise concerns that the release of toxic gas could kill anyone within 200 metres and cause severe health consequences for those within a radius of 2.4 km;[385] by the same logic, animals (which form part of the natural environment) would have been impacted. In any case, any attack against other types of works and installations such as chemical plants and petroleum refineries that have become military objectives

[377] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 669, para. 2153.

[378] On the need to take all necessary precautions in such attacks, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 42, pp. 141–142: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule42 and supporting references, in particular Colombia, Presidency, Office of the Human Rights Adviser, Comments on the article published in *La Prensa* by P.E. Victoria on the 1977 Additional Protocol II, undated, para. 5, reprinted in *Congressional Record Concerning the Enactment of Law 171 of 16 December 1994*; France, Reservations and declarations made upon ratification of the 1977 Additional Protocol I, 11 April 2001, para. 15; Italy, *Manuale del Combattente*, 1998, para. 246; and United Kingdom, Reservations and declarations made upon ratification of the 1977 Additional Protocol I, 28 January 1998, para. N. On the importance of the proportionality test in such attacks, see e.g. United States, *Air Force Pamphlet 110-31*, *International Law – The Conduct of Armed Conflict and Air Operations*, 1976, para. 5-3(d). More generally regarding the application of the general rules on proportionality and precautions to the natural environment, see Rules 7 and 8 of the present Guidelines.

[379] The term "feasible" has been interpreted to mean practicable or practically possible, taking into account all circumstances ruling at the time, including humanitarian and military considerations. In the context of works and installations containing dangerous forces, the humanitarian considerations relevant to this assessment will be particularly heavily weighted. See Rule 8 for a further discussion of feasible precautions.

[380] Regarding the level at which a decision to attack a work or installation containing dangerous forces should be taken, see e.g. Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 5.49, which states that "any such attack would be approved at the highest command level". See also United States, *Air Force Pamphlet 110-31, International Law – The Conduct of Armed Conflict and Air Operations*, 1976, para. 5-3(d), which states that "[t]arget selection of such objects is accordingly a matter of national decision at appropriate high policy levels". More generally on the requirement that States make legal advisers available, when necessary, to advise military commanders at the appropriate level on the application of IHL, see Rule 31 of the present Guidelines.

[381] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 669–670, para. 2154.

[382] The link between the natural environment and losses among the civilian population is addressed in greater detail under the heading "Consequences of the release of dangerous forces", paras 164–165 of the present Guidelines.

[383] Inclusion of other works and installations containing dangerous forces could not be agreed upon at the 1974–1977 Diplomatic Conference. For an overview of this discussion, see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 668–669, paras 2146–2150.

[384] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 42, p. 142: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule42.

[385] OHCHR, "Chemical disaster fear in Eastern Ukraine prompts UN expert to raise alarm", Geneva, 10 March 2017: https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=21344&LangID=E.

remain governed by the rules of proportionality and precautions,[386] the application of which will require that the foreseeable effects of such an attack are taken into account.

163. Article 56(7) of Additional Protocol I provides that States Parties may mark works and installations containing dangerous forces with a special sign to facilitate their clear and quick identification. This internationally recognized sign is a group of three bright orange circles of equal size, placed on the same axis, the distance between each circle being one radius.[387] Although this possibility is established within the framework of Additional Protocol I, the ICRC encourages all parties to conflicts – regardless of whether they are Parties to Additional Protocol I, and regardless of whether the conflict is international or non-international in character – to consider marking works and installations containing dangerous forces with this sign. In any event, the absence of such a sign does not remove the special protection afforded to objects by these rules, but it is nevertheless in the interest of parties to conflict that wish their dams, dykes or nuclear electrical generating stations to be respected to mark them clearly.[388]

Consequences of the release of dangerous forces

164. Both Rule 11.A and Rule 11.B provide indirect protection to the natural environment in two ways. First, from a practical standpoint, any release of dangerous forces capable of causing severe losses among the civilian population is also likely to damage the natural environment in which the population lives, so by requiring that such a release be avoided (Rule 11.A) or is prohibited (Rule 11.B), the natural environment benefits from indirect protection. For example, the attacks on the German hydroelectric dams of Eder and Möhne in May 1943 killed 1,300 people, but also damaged 3,000 hectares of cultivated land and killed 6,500 livestock,[389] both of which constituted parts of the natural environment.

165. Second, and of significance for the legal criterion of "severe losses among the civilian population", the natural environment and the health of the civilian population may be intrinsically interlinked, and damage to the natural environment caused by the release of dangerous forces may also have fatal consequences for the civilian population. For example, the release of nuclear energy would involve the contamination of surrounding land and water supplies with radioactive particles and the dispersal of dirt and soot affecting the atmosphere and climate. This would be likely to have a severe impact on farming and food production, potentially putting communities at risk of starvation.[390] Recognition of this link between the natural environment and severe losses among the civilian population is of vital importance, and indeed some States have expressly identified the protection of the natural environment as one of the purposes of limiting attacks against works and installations containing dangerous forces, alongside the purpose of protecting the civilian population.[391]

[386] See Rules 7 and 8 of the present Guidelines.

[387] Additional Protocol I (1997), Art. 56 and Annex I, Art. 17.

[388] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 672, para. 2182.

[389] *Ibid.*, p. 667, para. 2143.

[390] L. Maresca and E. Mitchell, "The human costs and legal consequences of nuclear weapons under international humanitarian law", *International Review of the Red Cross*, Vol. 97, No. 899, 2015, p. 641.

[391] See e.g. Lithuania, *Criminal Code*, 1961, as amended in 1998, Article 337, which makes it a war crime to launch "a military attack against an object posing a great threat to the environment and people – a nuclear plant, a dam, a storage facility of hazardous substances or other similar object – knowing that it might have extremely grave consequences"; and Council of Europe, Parliamentary Assembly, Rec. 1495, Environmental impact of the war in Yugoslavia on South-East Europe, 24 January 2001, para. 2, which points out that States involved in military operations during the war in the former Yugoslavia "disregarded the international rules set out in Articles 55 and 56 of Protocol I (1977) to the Geneva Conventions of 1949 intended to limit environmental damage in armed conflict".

Rule 12 – Prohibitions regarding cultural property

A. Property of great importance to the cultural heritage of every people, including such property which constitutes part of the natural environment, must not be the object of attack or used for purposes which are likely to expose it to destruction or damage, unless imperatively required by military necessity. Any form of theft, pillage or misappropriation of, and any acts of vandalism directed against, such property is prohibited.

B. For States party to Additional Protocols I and II, as well as for non-state actors that are party to non-international armed conflicts to which Additional Protocol II applies, directing acts of hostility against historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples, including when these are part of the natural environment, or using them in support of the military effort, is prohibited.

Commentary

166. The general rule embodied in Rule 12.A, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[392] Rule 12.B reflects Article 53 of the 1977 Additional Protocol I and Article 16 of the 1977 Additional Protocol II, similarly with the addition of an express reference to the natural environment. It is thus binding between States party to Additional Protocol I, as well as on parties to non-international armed conflicts to which Additional Protocol II applies, and is applicable in situations of international and non-international armed conflict, respectively.[393]

167. These rules are without prejudice to any other international instruments protecting cultural property and the natural environment that may apply in times of armed conflict.[394]

Prohibited acts

168. Cultural property is protected both when it is under the control of an adversary (such that belligerents must refrain from directing attacks against it) and when it is under a belligerent's own control. In the latter case, belligerents must refrain from using cultural property for purposes that are likely to expose it to destruction or damage and furthermore must refrain from any form of theft, pillage or misappropriation of, and any act of vandalism directed against, that property. The expression "acts of hostility" used in Rule 12.B covers both attacks in the framework of the conduct of hostilities and the destruction of property under a belligerent's own control.[395]

169. Rules 12.A and 12.B provide specific protection to cultural property, reinforcing protection of these types of objects as compared with other civilian objects. As such, parts of the natural environment also qualifying as cultural property benefit from the additional protection provided by these rules. Cultural property under so-called general, special or enhanced protection[396] may or must bear the respective distinctive emblems.[397] Furthermore, these rules limit the circumstances in which such property may be lawfully targeted to very exceptional situations, as outlined below. While there is no general prohibition under IHL of using a civilian object to contribute to its military action,

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[392] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 38, p. 127: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule38; *ibid.*, commentary on Rule 39, pp. 131–132: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule39; and *ibid.*, commentary on Rule 40, p. 132: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule40.

[393] On the scope of application of Additional Protocol II, see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 1347–1356.

[394] See e.g. World Heritage Convention (1972).

[395] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 647, para. 2070; Bothe/Partsch/Solf, *New Rules for Victims of Armed Conflicts*, p. 375, para. 2.5.2. See also R. O'Keefe, *The Protection of Cultural Property in Armed Conflict*, Cambridge University Press, Cambridge, 2006, p. 215.

[396] For more information on general or special protection, see Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict (1954), Chaps I and II; and Second Protocol to the Hague Convention for the Protection of Cultural Property (1999), Chap. 2. For further details on enhanced protection, see Second Protocol to the Hague Convention for the Protection of Cultural Property (1999), Chap. 3.

[397] Hague Convention for the Protection of Cultural Property (1954), Arts 6 and 16–17. A distinctive emblem for cultural property under enhanced protection was established by a decision adopted in 2015 by States party to the Second Protocol to the Convention: UNESCO, Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict (1999), Sixth Meeting of the Parties, CLT-15/6.SP/CONF.202/DECISIONS, Paris, 18 January 2016, Decision 6.SP 2, p. 2: https://unesdoc.unesco.org/ark:/48223/pf0000243550.

under Rule 12.A parties to an armed conflict must refrain from using cultural property for purposes which are likely to expose it to destruction or damage, unless imperatively required by military necessity. Furthermore, unlike for other civilian objects, in addition to pillage, this rule prohibits any form of theft or misappropriation of, and any acts of vandalism directed against, property of great importance to the cultural heritage of every people. Under Rule 12.B, it is prohibited to use cultural property in support of the military effort.

170. The obligations laid down in the first sentence of Rule 12.A may be waived when "imperatively required by military necessity".[398] Conversely, the obligation laid down in the second sentence of Rule 12.A is not subject to any exceptions.

171. With regard to Rule 12.B, Article 53 of Additional Protocol I and Article 16 of Additional Protocol II do not provide for a waiver of the obligations it contains, although several States at the 1974–1977 Diplomatic Conference argued that notwithstanding the absence of a waiver, objects protected by the relevant provisions could become the object of attack if used, illegally, "for military purposes".[399]

Objects protected

172. These rules provide both direct and indirect protection to the natural environment.

173. Direct protection is afforded to the natural environment when an object forming part of the natural environment qualifies as cultural property.[400] The notion of cultural property is concerned primarily with man-made objects. Under the 1954 Hague Convention for the Protection of Cultural Property, it covers movable and immovable property of great importance to the cultural heritage of every people, as well as certain buildings and centres containing monuments.[401] Based on this definition, the natural environment will not generally qualify as cultural property. This being said, the possibility that a part of the natural environment, such as a tree of particular importance, may qualify as cultural property was envisaged at the Diplomatic Conference leading to the adoption of the 1954 Convention.[402] Furthermore, objects such as archaeological sites,[403] a cave containing prehistoric paintings, or a statue carved in the rock may conceivably qualify both as cultural property and as a part of the natural environment. Similarly, although natural sites, as such, were not included in the definition of cultural property under the 1954 Hague

[398] Article 4 of the 1954 Hague Convention for the Protection of Cultural Property provides that High Contracting Parties may only waive the obligations related to directing an act of hostility against property of great importance to the cultural heritage of every people or to using it for purposes which are likely to expose it to destruction or damage in cases where military necessity imperatively requires such a waiver. Article 6(a) of the 1999 Second Protocol to the Convention has sought to clarify the meaning of imperative military necessity, stating with regard to directing an act of hostility against property of great importance to the cultural heritage of every people, that a waiver on this basis may only be invoked when and for as long as: (1) the cultural property in question has, by its function, been made into a military objective; and (2) there is no feasible alternative to obtain a similar military advantage to that offered by attacking that objective. With regard to the use of such property for purposes which are likely to expose it to destruction or damage, Article 6(b) of the Protocol states that a waiver on the basis of imperative military necessity may only be invoked "when and for as long as no choice is possible between such use of the cultural property and another feasible method for obtaining a similar military advantage". See also Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 38, pp. 129–130: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule38. On the notion of "imperative military necessity" in general, see para. 180 of the present Guidelines.

[399] See e.g. the statements of the Federal Republic of Germany, *Official Records of the Diplomatic Conference of Geneva of 1974–1977*, Vol. VI, CDDH/SR.42, pp. 225–226; Netherlands, *ibid.*, Vol. VII, CDDH/SR.53, pp. 161–162; United Kingdom, *ibid.*, Vol. VI, CDDH/SR.42, p. 238; and United States, *ibid.*, Vol. VI, CDDH/SR.42, pp. 240–241. As noted in Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, commentary on Article 53 of Additional Protocol I, p. 6648, para. 2079, the use of protected objects in support of the military effort, in violation of this provision, does not necessarily justify attacking these objects, as this will depend on them being a military objective. To render an attack permissible, in addition to being used for military purposes, the object must make an effective contribution to military action for the adversary, and its total or partial destruction, capture or neutralization in the circumstances ruling at the time must offer a definite military advantage.

[400] For the purposes of these Guidelines, the term "cultural property" is used generically to refer to all objects protected by Rules 12.A and 12.B within their respective scopes of application. The rules do not discuss, and are without prejudice to, the regimes of "special protection" and "enhanced protection" established by the 1954 Hague Convention for the Protection of Cultural Property and its 1999 Second Protocol, respectively.

[401] Hague Convention for the Protection of Cultural Property (1954), Art. 1.

[402] J. Toman, *The Protection of Cultural Property in the Event of Armed Conflict*, Dartmouth Publishing Company, Brookfield (Vermont), 1996, p. 53, citing the discussions that took place during the 1954 Diplomatic Conference; see Intergovernmental Conference on the Protection of Cultural Property in the Event of Armed Conflict, *Records of the Conference Convened by the United Nations Educational, Scientific and Cultural Organization, Held at The Hague from 21 April to 14 May 1954*, Staatsdrukkerij en Uitgeverijbedrijf, The Hague, 1961, p. 115, para. 129.

[403] With regard to underwater sites of archaeological and historical interest, see Toman, *The Protection of Cultural Property in the Event of Armed Conflict*, p. 53.

Convention,[404] they – or parts of them – may qualify as cultural property if they otherwise fulfil the relevant criteria. For example, the ancient Maya city of Calakmul, Campeche, located and dispersed within a dense tropical forest, constitutes at the same time a "center containing monuments"[405] registered as cultural property under special protection according to the 1954 Hague Convention[406] and a site listed by UNESCO as both a natural and a cultural World Heritage Site.[407] As in this case, World Heritage Sites may conceivably qualify as part of the natural environment and, if they meet the definition of cultural property under the 1954 Hague Convention, they – or parts of them – could also qualify as cultural property. If they do not meet the relevant criteria, they will not be considered cultural property.

174. Parts of the natural environment, such as specific mountains, forests or islands,[408] may also have, independently of their cultural value, a certain *spiritual* significance and be considered as sacred by a particular population. They may in such cases qualify as places of worship protected by Rule 12.B, provided they constitute the cultural or spiritual heritage of peoples.

[404] The 1954 Diplomatic Conference discussed the inclusion of "natural sites of great beauty" in the protective scope of the Convention but did not pursue the idea. Similarly, during a revision of the 1954 Hague Convention for the Protection of Cultural Property, an extension of the scope of the treaty to include "natural heritage" was not taken further. For more information on the reasons behind this decision, see P.J. Boylan, *Review of the Convention for the Protection of Cultural Property in the Event of Armed Conflict (The Hague Convention of 1954)*, UNESCO Doc. CLT-93/WS/12, Paris, 1993, paras 18.8–18.10.

[405] "Centers containing monuments" is a subcategory of cultural property defined in Article 1(c) of the 1954 Hague Convention for the Protection of Cultural Property.

[406] See UNESCO, International Register of Cultural Property under Special Protection, CLT/HER/CHP, 23 July 2015, Section: Mexico, para. II.1: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/Register2015EN.pdf.

[407] Thirty-nine World Heritage Sites are currently classified as being of a mixed natural and cultural nature, which can be used as guidance in finding other examples of objects qualifying as both natural sites and cultural property.

[408] Possible examples of such places can be found in e.g. C. McLeod, P. Valentine and R. Wild (eds), *Sacred Natural Sites: Guidelines for Protected Area Managers*, IUCN, Gland (Switzerland), 2008.

Section 3. Protection afforded to the natural environment as a civilian object by the rules on enemy property

Rule 13 – Prohibition of the destruction of the natural environment not justified by imperative military necessity

The destruction of any part of the natural environment is prohibited, unless required by imperative military necessity.

Commentary

175. The application specifically to the natural environment of the general customary rule prohibiting the destruction or seizure of an adversary's property has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[409] The general rule prohibiting the destruction or seizure of an adversary's property unless required by imperative military necessity is based on Article 23(g) of the 1907 Hague Regulations and on Article 53 of the 1949 Fourth Geneva Convention, the latter of which applies in occupied territory.

176. With regard to the relationship between this rule and other rules, it is important to note at the outset that "imperative military necessity" may not be invoked on the basis of this rule to justify the destruction of – or other damage to – parts of the natural environment when such destruction or damage would be prohibited by other rules. In particular, destruction carried out by attack is governed by the rules on attack (see Rules 5 to 8 of the present Guidelines); imperative military necessity cannot allow an object that does not constitute a military objective to be attacked.[410] Nor does it allow the use of methods or means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment (Rule 2 of the present Guidelines). Similarly, destruction of parts of the natural environment that would qualify as objects indispensable to the survival of the civilian population is restricted by the specific protection afforded to such objects (Rule 10 of the present Guidelines).

Destruction

177. Contrary to the prohibition of widespread, long-term and severe damage to the natural environment,[411] this rule prohibits any 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. For instance, although there were differing views as to whether the destruction of oil wells during the 1990–1991 Gulf War reached the threshold of widespread, long-term and severe,[412] there was general agreement that it amounted to a violation of the prohibition against the destruction of an adversary's property in the absence of imperative military necessity.[413] More generally, the destruction of property, including property that is part of the natural environment, can take various forms, such as setting fire to it or otherwise seriously damaging it.

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[409] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 43.B and commentary, pp. 144–145: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule43 and related practice. For the general customary rule, not specific to the natural environment, on the destruction and seizure of property of an adversary, see *ibid.*, Rule 50 and commentary, pp. 175–176: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule50.

[410] See the comparative analysis of Article 23(g) of the 1907 Hague Regulations and Article 52(2) of Additional Protocol I in ILA Study Group on the Conduct of Hostilities in the 21st Century, "The conduct of hostilities and international humanitarian law: Challenges of 21st century warfare", pp. 348–349: "As the customary norm is identical to Article 52(2) API [Additional Protocol I], we must conclude that today in the conduct of hostilities any destruction due to attacks against property is exclusively regulated by the rule contained in Article 52(2) API. Put otherwise, in situations of hostilities, imperative military necessity does not allow attacking an object that does not constitute a military objective under Article 52(2) API and the corresponding rule of customary law." See also United States, *Law of War Manual*, 2015 (updated 2016), pp. 586–593, para. 5.17: "Outside the context of attacks, certain rules apply to the seizure and destruction of enemy property: Enemy property may not be seized or destroyed unless imperatively demanded by the necessities of war."

[411] This prohibition is addressed in Rule 2 of the present Guidelines.

[412] See e.g. Boothby, *Weapons and the Law of Armed Conflict*, p. 84; and Hulme, *War Torn Environment*, p. 172. At the time, it was also observed that Additional Protocol I (and therefore its Articles 35 and 55) did not apply to this conflict.

[413] See e.g. United States Department of Defense, "Final Report to Congress on the Conduct of the Persian Gulf War, Appendix O on the Role of the Law of War", pp. 636–637; and Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, p. 218. See also Hulme, *War Torn Environment*, pp. 176–178. Regarding State liability for, among other things, environmental damage in this context, see UN Security Council, Res. 687, 3 April 1991, para. 16.

Property including any part of the natural environment

178. The customary rule protecting the natural environment from destruction flows, among other things, from Article 23(g) of the 1907 Hague Regulations and Article 53 of the Fourth Geneva Convention, which apply to the property of an adversary. The property of an adversary is defined broadly, as described by the ICRC's 1958 commentary on Article 53 of the Fourth Geneva Convention (in the context of occupied territory): "[T]he prohibition covers the destruction of all property (real or personal), whether it is the private property of protected persons (owned individually or collectively), State property, that of the public authorities (districts, municipalities, provinces, etc.) or of co-operative organizations."[414] Different parts of the natural environment could conceivably be any such type of property.

179. As components of the natural environment which may be placed at particular risk in times of armed conflict, it is worth highlighting that this rule protects natural resources from destruction or seizure. Indeed, UNEP estimates that since 1990, at least 35 armed conflicts have been financed in part by the exploitation of natural resources.[415] Natural resources can include high-value commodities such as timber, gold and oil, but also parts of the natural environment such as water and fertile land.[416]

Imperative military necessary

180. The principle of "military necessity" or "military requirement" is an essential component of IHL[417] and appears in many provisions of the 1949 Geneva Conventions.[418] It permits measures that are necessary to accomplish a legitimate military purpose but that are not otherwise unlawful, bearing in mind that in the context of armed conflict, the only legitimate military purpose is to weaken the military capacity of the adversary.[419] The fact that destruction might be justified by military necessity is built into most articles dealing with the protection of property in the Geneva Conventions.[420] Under this rule, the destruction of parts of the natural environment will only be lawful if a certain high standard of military necessity is met. The related general treaty provisions provide that destruction must "be imperatively demanded by the necessities of war" (Article 23(g) of the 1907 Hague Regulations) or is "rendered absolutely necessary by military operations" (Article 53 of the Fourth Geneva Convention). For the purposes of this rule, an example of sufficient military necessity for the destruction of parts of the natural environment could be that the only safe locations for a military camp are on top of forested hills, and to set up the camp a section of trees must be cleared.

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[414] Pictet (ed.), *Commentary on the Fourth Geneva Convention*, 1958, p. 301.

[415] UNEP, UN Environment launches online course on environmental security and sustaining peace, 6 November 2017: www.unenvironment.org/news-and-stories/story/un-environment-launches-online-course-environmental-security-and-sustaining: "Conflicts over natural resources are among the greatest challenges in 21st century geopolitics, and present serious threats to human security. At least 40 per cent of all internal armed conflicts over the past 65 years have had an important natural resource dimension. Since 1989, more than 35 major armed conflicts have been financed by revenues from conflict resources." See also UNEP, *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, UNEP, Nairobi, 2009, p. 5. Regarding the impact of conflict on natural resources, see *ibid.*, pp. 15–18.

[416] UNEP, *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, p. 7, defines "natural resources" as follows:

> Natural resources are actual or potential sources of wealth that occur in a natural state, such as timber, water, fertile land, wildlife, minerals, metals, stones, and hydrocarbons. A natural resource qualifies as a renewable resource if it is replenished by natural processes at a rate comparable to its rate of consumption by humans or other users. A natural resource is considered non-renewable when it exists in a fixed amount, or when it cannot be regenerated on a scale comparative to its consumption.

[417] The 1868 St Petersburg Declaration aimed to reach a common agreement on "the technical limits at which the necessities of war ought to yield to the requirements of humanity". Similarly, the preamble to the 1907 Hague Convention (IV) stated that the drafting of the Convention had been inspired "by the desire to diminish the evils of war, as far as military requirements permit".

[418] For an overview of the appearance of the notion of "military necessity" throughout the Geneva Conventions, see ICRC, *Commentary on the First Geneva Convention*, 2016, para. 1112 and fn. 74.

[419] ICRC, *Handbook on International Rules Governing Military Operations*, ICRC, Geneva, 2013, p. 54.

[420] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 3013 and fn. 202.

Rule 14 – Prohibition of pillage

Pillage is prohibited, including pillage of property constituting part of the natural environment.

Commentary

181. The general prohibition of pillage, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[421] It reflects, among other things, the prohibitions of pillage set down in Articles 28 and 47 of the 1907 Hague Regulations, Article 33(2) of the 1949 Fourth Geneva Convention and Article 4(2)(g) of the 1977 Additional Protocol II. Pillage furthermore constitutes a war crime under the 1998 ICC Statute in both international and non-international armed conflicts.[422]

182. Given that components of the natural environment can be subject to ownership such that they are "property" – be they livestock or plots of land – the prohibition of pillage also applies to those parts of the natural environment that constitute property.

Pillage

183. The term "pillage" refers to the appropriation or obtention of public or private property by an individual without the owner's implied or express consent, in violation of IHL,[423] and does not necessarily involve the use of force or violence.[424] The prohibition covers both organized pillage, such as that authorized or ordered by a party to a conflict, and individual acts of pillage, whether they are committed by civilians or military personnel.[425] As held by the ICTY, the prohibition of pillage "extends both to acts of looting committed by individual soldiers for their private gain, and to the organized seizure of property undertaken within the framework of a systemic economic exploitation of occupied territory".[426] It should be noted that the 2000 ICC Elements of Crimes defines "pillaging" as the act of appropriation of certain property without the consent of the owner, with the intent to deprive the owner of the property and to appropriate it for private or personal use.[427] In the ICRC's view, the mental element ("with the intent to") could be seen as unduly restrictive[428] as it would not cover a number of situations qualified as pillage or plunder by courts and tribunals after the Second World War. [429]

184. Note, however, that certain rules of IHL permit the lawful appropriation of property, and such circumstances should be distinguished from pillage. First, in international armed conflicts, parties may capture as war booty all types of an adversary's movable public property that can be used for military operations, such as arms and munitions, if

[421] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 52 and commentary, p. 182: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule52 and related practice.

[422] ICC Statute (1998), Arts 8(2)(b)(xvi) and (e)(v). See also J.G. Stewart, *Corporate War Crimes: Prosecuting Pillage of Natural Resources*, Open Society Foundations, New York, 2011.

[423] It will be in violation of IHL if it does not fall under one of the three exceptions set out in this section.

[424] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 1494 and fn. 26, referring, in particular, to ICTY, *Hadžihasanović case*, Trial Judgment, 2006, para. 49. See also A.A. Steinhamm, "Pillage", in R. Bernhardt (ed.), *Encyclopedia of Public International Law*, Vol. III, North Holland, Amsterdam, 1997, p. 1029, noting that the "notion of appropriation or *obtaining* against the owner's will … with the intention of unjustified gain, is inherent in the idea of pillage" (emphasis added).

[425] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 1495.

[426] ICTY, *Prosecutor* v. *Delalić et al.*, Trial Chamber, Judgment, 16 November 1998, para. 590. As an example of organized pillage, see International Military Tribunal for Germany (Nuremberg), *Case of the Major War Criminals*, Judgment, 1946.

[427] ICC Elements of Crimes (2000), Art. 8(2)(b)(xvi), according to which "pillaging" includes the following components: the perpetrator appropriated certain property; the perpetrator intended to deprive the owner of the property and to appropriate it for private or personal use; and the appropriation was without the consent of the owner.

[428] On this issue, see Stewart, *Corporate War Crimes*, pp. 19–20. The Special Court for Sierra Leone has also taken the view that "the requirement of 'private or personal use' is unduly restrictive and ought not to be an element of the crime of pillage": *Brima and Others case*, Judgment, 20 June 2007, para. 754, and *Fofana and Others case*, Judgment, 2 August 2007, para. 160. See also O. Radics and C. Bruch, "The law of pillage, conflict resources, and *jus post bellum*", in C. Stahn, J. Iverson and J.S. Easterday (eds), *Environmental Protection and Transitions from Conflict to Peace: Clarifying Norms, Principles, and Practices*, Oxford University Press, Oxford, 2017, p. 149.

[429] See e.g. Singapore, Court of Appeal, *N.V. de Bataafsche Petroleum Maatschappij and Others* v. *The War Damage Commission* (Singapore Oil Stocks Case), Decision, 13 April 1956, reprinted in *American Journal of International Law*, Vol. 51, No. 4, 1957, pp. 802–815; US Military Tribunal at Nuremberg, *United States* v. *Alfried Krupp and Others (The Krupp Trial)*, Judgment, 1948, reprinted in *Law Reports of Trials of War Criminals*, Vol. X: *The I.G. Farben and Krupp Trials*, 1949, p. 73; and US Military Tribunal at Nuremberg, *United States* v. *Krauch and Others* (*I.G. Farben Trial)*, Judgment, 1948, reprinted in *Law Reports of Trials of War Criminals*, Vol. X: *The I.G. Farben and Krupp Trials*, p. 4.

taken for State rather than private use.[430] Second, in both international and non-international armed conflicts, an adversary's property may be lawfully destroyed or appropriated if required by imperative military necessity.[431] Finally, in international armed conflicts, an occupying power may lawfully use the resources of the occupied territory within the limits of the law of occupation, for example for the maintenance and needs of the army of occupation.[432] Other than these listed exceptions, appropriation of public or private property during armed conflict by an individual without the consent of the owner constitutes pillage.[433]

Protected property

185. The prohibition of pillage extends to the appropriation of all types of property. The object appropriated must be the subject of ownership in order to be protected, but the term "property" is to be understood broadly to cover all objects owned by private persons, communities or the State.[434]

186. Valuable natural resources are a part of the natural environment that has historically proved to be particularly at risk of unlawful appropriation in the insecure contexts of armed conflict, given that they offer the potential of significant enrichment.[435] These will often constitute public property and thus be protected from pillage by this rule, subject to the rules of IHL governing the lawful appropriation of the property of an adversary outlined above.[436] Indeed, the systematic extraction of oil stocks and the unlawful exploitation of natural resources such as gold and diamonds have been recognized as pillage by international and domestic courts.[437] As this example shows, this rule provides direct protection to the natural environment, although it can also provide indirect protection, for instance when the process of natural resource extraction also causes damage to surrounding flora and fauna.

[430] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 49, p. 173: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule49: "The parties to the conflict may seize military equipment belonging to an adverse party as war booty." See also ICRC, *Commentary on the First Geneva Convention*, 2016, para. 1496. This exception is addressed in greater detail under Rule 15 of the present Guidelines.

[431] This exception is derived from Article 23(g) of the 1907 Hague Regulations and is expressed as a customary rule in Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law,* Vol. I, Rule 50, p. 175: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule50. It is addressed in greater detail under Rule 13 of the present Guidelines.

[432] See Hague Regulations (1907), Arts 52, 53 and 55; and Fourth Geneva Convention (1949), Arts 55 and 57. This exception is addressed in greater detail under Rule 15 of the present Guidelines. On this issue, see E.K.D. Santerre, "From confiscation to contingency contracting: Property acquisition on or near the battlefield", *Military Law Review*, Vol. 124, 1989, pp. 117–122; W.G. Downey, Jr., "Captured enemy property: Booty of war and seized enemy property", *American Journal of International Law*, Vol. 44, 1950, pp. 496–499; R. Dolzer, "Requisitions", in R. Bernhardt (ed.), *Encyclopedia of Public International Law*, Vol. III, North Holland, Amsterdam, 1997, pp. 205–208; A. McDonald and H. Brollowski, "Requisitions", in R. Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law*, Oxford University Press, Oxford, April 2011; G. von Glahn, *The Occupation of Enemy Territory: A Commentary on the Law and Practice of Belligerent Occupation*, University of Minnesota Press, Minneapolis, 1967, pp. 176–183 (public property) and 185–191 (private property); and E.H. Feilchenfeld, *The International Economic Law of Belligerent Occupation*, Carnegie Endowment for International Peace, Washington, D.C., 1942, pp. 30–41, 50–51 (private property) and 57 (public property).

[433] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 1496.

[434] On the broad interpretation of the term "property", see Pictet, *Commentary on the Fourth Geneva Convention*, 1958, pp. 226–227.

[435] For a discussion of the role of natural resources and the natural environment in conflict, see UNEP, *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, 2009.

[436] For cases of pillage of natural resources, see e.g. ICJ, *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo* v. *Uganda)*, Judgment, 19 December 2005, paras 237–250, in particular para. 245, in which the Court found that the looting, plunder and exploitation of natural resources in the Democratic Republic of the Congo was a violation of *jus in bello*, and noted the prohibition of pillage in Article 47 of the 1907 Hague Regulations and Article 33 of the 1949 Fourth Geneva Convention. See also UN War Crimes Commission, *History of the United Nations War Crimes Commission and the Development of the Laws of War*, His Majesty's Stationery Office, London, 1948, p. 496, in which the UN War Crimes Commission accuses German administrators of occupied Polish forest of pillage for their involvement in the "wholesale cutting of Polish timber to an extent far in excess of what was necessary to preserve the timber resources of the country". More generally regarding the pillage of natural resources, see P. Le Billon, *Wars of Plunder: Conflicts, Profits and the Politics of Resources*, Hurst, London, 2012; M.A. Lundberg, "The plunder of natural resources during war: A war crime?", *Georgetown Journal of International Law*, Vol. 39, No. 3, 2008, pp. 495–525; and Radics/Bruch, "The law of pillage, conflict resources, and *jus post bellum*", pp. 143–168.

[437] See Singapore Court of Appeal, *N.V. de Bataafsche Petroleum Maatschappij and Others* v. *The War Damage Commission* (Singapore Oil Stocks Case), Decision, 13 April 1956, reprinted in *American Journal of International Law*, Vol. 51, No. 4, 1957, pp. 802–815; and ICJ, *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo* v. *Uganda)*, Judgment, 19 December 2005, para. 250.

Rule 15 – Rules concerning private and public property, including the natural environment, in case of occupation

In occupied territory:

A. movable public property, including objects forming part of the natural environment, that can be used for military operations may be confiscated;

B. immovable public property, including objects forming part of the natural environment, must be administered according to the rule of usufruct; and

C. private property, including objects forming part of the natural environment, must be respected and may not be confiscated;

except where destruction or seizure of such property is required by imperative military necessity.

Commentary

187. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable in international armed conflicts.[438] It reflects, among other things, obligations set out in Articles 46, 52, 53 and 55 of the 1907 Hague Regulations and Articles 53 and 55 of the 1949 Fourth Geneva Convention.

188. This rule specifies, for the case of occupation, the prohibitions on the destruction, seizure and appropriation of property set forth in Rules 13 and 14 of the present Guidelines. Accordingly, it is narrower in scope than the two more general rules, which apply to both public and private property in both occupied and a party's own territory and in both international and non-international armed conflicts. By contrast, the present rule applies exclusively in occupied territory in the context of an international armed conflict.[439] In addition, Rules 15.A and 15.B apply exclusively to public property, while Rule 15.C applies exclusively to private property.

Rule 15.A

189. This rule provides that movable public property that can be used for military operations may be confiscated. The verb "confiscate" refers to the taking of property without the obligation to compensate the State to which the property belonged.[440] The property may also be destroyed or seized in specific circumstances (see para. 197 of the present Guidelines).

190. Movable public property is defined by the 1907 Hague Regulations as "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".[441] An important caveat to this definition is that the property of municipalities and of institutions dedicated to religion, charity and education, the arts and sciences, even when State (i.e. public) property, must be treated as private property for the purposes of this rule, and thus cannot be confiscated.[442]

191. Objects forming part of the natural environment, such as livestock belonging to the armed forces, could conceivably fall under this definition of movable public property.

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[438] See Henckaerts/Doswald-Beck (eds), *Customary International Humanitarian Law*, Rule 51 and commentary, p. 178: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule51 and related practice.

[439] The focus of this rule is property in occupied territory. For a discussion of this and other topics relevant to the protection of the natural environment in situations of occupation, see ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), Principles 20, 21 and 22 and commentary, pp. 265–280.

[440] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 51, p. 178: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule51. See also Santerre, "From confiscation to contingency contracting: Property acquisition on or near the battlefield", p. 120; and Downey, "Captured enemy property: Booty of war and seized enemy property", p. 496.

[441] Hague Regulations (1907), Art. 53.

[442] *Ibid.*, Art. 56.

Rule 15.B

192. Under this rule, immovable public property must be administered according to the rule of usufruct, except when interference with public property is otherwise expressly authorized by other applicable IHL provisions (see para. 197 of the present Guidelines).

193. The rules governing immovable public property and usufruct are codified in the 1907 Hague Regulations as follows: "The occupying State shall be regarded only as administrator and usufructuary of public buildings, real estate, forests, and agricultural estates belonging to the hostile State, and situated in the occupied territory. It must safeguard the capital of these properties, and administer them in accordance with the rules of usufruct."[443]

194. Parts of the natural environment directly protected by this rule therefore include agricultural areas and forests. In addition, natural resources will typically be immovable rather than movable property,[444] and therefore will be directly protected by this rule and subject to the controls of usufruct when they constitute immovable public property of the enemy State. Accordingly, jurisprudence has recognized that exploitation of natural resources in occupied territories that goes beyond the rules of usufruct, i.e. by way of excessive consumption of resources including when the local economy is not considered, is prohibited.[445]

Rule 15.C

195. This rule provides that private property must be respected and may not be confiscated, although it may be destroyed or seized in specific circumstances (see para. 197 of the present Guidelines). Notably, the prohibition of confiscation does not mean that no private property may ever be seized, requisitioned or expropriated, but there are clear requirements if this is done. What is prohibited is "confiscation", which refers to appropriation without compensation. Consequently, the appropriation of private property may be permitted under different conditions, namely: requisitions in kind may be made as long as compensation is provided in line with Article 52 of the 1907 Hague Regulations; or property may be seized as long as the property is restored and compensation is fixed when peace is made in line with Article 53(2) of the Regulations or in conformity with the laws in force in the country, in line with Article 43 of the Regulations.[446]

196. Parts of the natural environment – such as natural resources, farmlands and livestock – are likely to be owned by private individuals or private entities, and as such will be directly protected by this rule.

Imperative military necessity

197. Destruction or seizure of the public and private property referred to above is authorized in case of imperative military necessity.[447] In other words, Rules 15.A, 15.B and 15.C are without prejudice to the lawful destruction or seizure of

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[443] *Ibid.*, Art. 55.

[444] See e.g. Singapore Court of Appeal, *N.V. de Bataafsche Petroleum Maatschappij and Others* v. *The War Damage Commission*, (Singapore Oil Stocks Case), Decision, 13 April 1956, reprinted in *American Journal of International Law*, Vol. 51, No. 4, 1957, pp. 802–815, in which it was held that oil stocks in the Netherlands East Indies seized by Japan were not movable objects within the meaning of Article 53 of the 1907 Hague Regulations: "[C]rude oil in the ground, being an immoveable and not susceptible of direct military use, is not a 'munitions-de-guerre' within the meaning of Article 53."

[445] See e.g. Nuremberg Military Tribunals, *Trials of War Criminals before the Nuremberg Military Tribunals Under Control Council Law No. 10 (October 1946–April 1949)*, US Government Printing Office, Washington, D.C., 1950, Vol. VI: *The Flick case*; *ibid.*, Vol. VII and VIII: *The I.G. Farben case*; and *ibid.*, Vol. IX: *The Krupp case*. Note also that when hostilities take place in occupied territory such that Article 53 of the Fourth Geneva Convention applies, that article permits destruction of property (including natural resources) by the occupying power when such destruction is rendered absolutely necessary by military operations. A number of military manuals also indicate that the occupying power cannot use the public immovable property in occupied territory in a way that does not safeguard its capital, see e.g. Canada, *Law of Armed Conflict at the Operational and Tactical Levels*, 2001, pp. 12-12, para. 1243; New Zealand, *Manual of Armed Forces Law: Law of Armed Conflict*, Vol. 4, 2017, p. 9–6; United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, p. 303, para. 11.86; and United States, *Law of War Manual*, 2015 (updated 2016), pp. 810–811, para. 11.18.5.2. See also United States, "Department of State Memorandum of Law on Israel's Right to Develop New Oil Fields in Sinai and the Gulf of Suez", *International Legal Materials*, Vol. 16, No. 3, May 1977, pp. 733–753. For a recent case addressing the manner in which natural resources must be managed by the usufructuary, which diverges in part from this practice, see Israel, Supreme Court, *Yesh Din–Volunteers for Human Rights and Others* v. *Commander of the IDF Forces in the West Bank and Others*, Judgment, 26 December 2011; see also Y. Dinstein, *The International Law of Belligerent Occupation*, 2nd ed., Cambridge University Press, Cambridge, 2019, pp. 233–235. Certain elements of the Israeli Supreme Court decision – notably its interpretation and application of Article 55 of the 1907 Hague Regulations – have been challenged by some academics. See e.g. Expert Legal Opinion, Jerusalem, January 2012, pp. 35–53: https://s3-eu-west-1.amazonaws.com/files.yesh-din.org/עתירות/מחצבות/Quarries+Expert+Opinion+English.pdf.

[446] For the rules regulating such appropriation and compensation, see Hague Regulations (1907), Art. 53. Similarly, regarding requisitions, see *ibid.*, Art. 52.

[447] What constitutes lawful military necessity will be determined, where they are applicable, by Articles 52 and 53 of the 1907 Hague Regulations and by Articles 53 and 55 of the 1949 Fourth Geneva Convention. For example, the standard of military

the property concerned, when that destruction or seizure is required by imperative military necessity. Such destruction is, however, limited by the "ceiling" of destruction established by the absolute prohibition of widespread, long-term and severe damage to the natural environment.[448]

necessity set out in Article 53 of the Fourth Geneva Convention is stated as follows: "Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or cooperative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military operations."

[448] This prohibition is addressed under Rule 2 of the present Guidelines.

Section 4. Additional protections for the natural environment under international humanitarian law

Rule 16 –The Martens Clause with respect to the protection of the natural environment

In cases not covered by international agreements, the natural environment remains under the protection and authority of the principles of international law derived from established custom, the principles of humanity and the dictates of public conscience.

Commentary

198. This rule flows from the Martens Clause, a provision first adopted in the preamble to the 1899 Hague Convention (II) and subsequently included in the preamble to the 1907 Hague Convention (IV), the denunciation clauses of the 1949 Geneva Conventions,[449] Article 1(2) of the 1977 Additional Protocol I and the preamble to the 1977 Additional Protocol II.[450] The ICJ has found the Martens Clause to be of a customary nature.[451] Rule 16 was first expressed in the ICRC's 1994 *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict.*[452]

199. The meaning of the Martens Clause remains subject to discussion.[453] It has been contended that the Martens Clause and especially the terms "laws of humanity" and "requirements of the public conscience" (as they are phrased in some versions of the Martens Clause), either individually or combined, have an autonomous normative value under international law.[454] The term "laws of humanity" has been associated with the notion of "elementary considerations of humanity", while the term "requirements of the public conscience" has been suggested as being identifiable in the motivation of States, organizations or individuals that has led to the adoption of treaties in the area of IHL. In contrast to the view that the "laws of humanity" and the "requirements of the public conscience" are potentially autonomous sources of international law, it has been held that the Martens Clause has no influence on the system of the sources of international law but functions within the triad of sources (treaties, customary law, general principles of law) as it is commonly understood to be expressed in Article 38(1)(a)–(c) of the 1945 ICJ Statute.

200. As a minimum, the Martens Clause can be seen as a reminder of the continued validity of customary international law beside treaty law. Bearing in mind that, despite the number of subjects today regulated in considerable detail under humanitarian treaty law, no codification can be complete. This rule should therefore also be regarded as expressly preventing the *argumentum e contrario* that what is not explicitly prohibited by treaty law is necessarily permitted. In addition, it should be seen as underlining the dynamic factor of IHL, confirming the application of the principles and rules of IHL to new situations or to developments in technology, also when those are not, or not specifically, addressed in treaty law. This understanding is particularly pertinent for the protection of the natural environment, as humankind's knowledge of the environmental effects of warfare is continually deepened by advances in science and technology.

201. The principles of international law derived from established custom, the principles of humanity and the dictates of public conscience are today understood as encompassing recognition of the importance of protecting the natural environment.[455] This understanding is based both on the intrinsic link between the survival of civilians and

[449] First Geneva Convention (1949), Art. 63; Second Geneva Convention (1949), Art. 62; Third Geneva Convention (1949), Art. 142; Fourth Geneva Convention (1949), Art. 158.

[450] The Martens Clause is also referred to in other treaties, including in the preambles to the 1980 CCW, as amended in 2001, and the 2008 Convention on Cluster Munitions. See also Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 7, para. 2.

[451] See ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 84.

[452] ICRC, *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict*, para. 7.

[453] For a more detailed overview of different views on the interpretation of the Martens Clause in the context of the protection of the natural environment, see ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), Principle 12 and commentary, pp. 247–250.

[454] For these and further observations on the meaning of the Martens Clause, see ICRC, *Commentary on the First Geneva Convention*, 2016, paras 3290–3298, providing further references that are omitted here. The present commentary on Rule 16 reflects those paragraphs of the commentary on Article 63.

[455] For this understanding, see UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, pp. 46–47; Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 40; P. Sands, *Principles of International Environmental Law*, Cambridge University Press, Cambridge, 1994,

combatants and the state of the natural environment in which they live, as well as on the need to protect the natural environment, in and of itself, according to the dictates of public conscience.[456]

p. 311; S. Vöneky, "Peacetime environmental law as a basis of state responsibility for environmental damage caused by war", in J.E. Austin and C.E. Bruch (eds), *The Environmental Consequences of War: Legal, Economic, and Scientific Perspectives*, Cambridge University Press, Cambridge, 2000, p. 218; and M. Bothe, "The protection of the environment in times of armed conflict: Legal rules, uncertainty, deficiencies, and possible developments", p. 6: "in our time, the 'dictates of public conscience' certainly include environmental concern". See also Second World Conservation Congress, Amman, 4–11 October 2000, Recommendation 2.97, A Marten's Clause for environmental protection, which provides:

> Until a more complete international code of environmental protection has been adopted, in cases not covered by international agreements and regulations, the biosphere and all its constituent elements and processes remain under the protection and authority of the principles of international law derived from established custom, from dictates of the public conscience, and from the principles and fundamental values of humanity acting as steward for present and future generations.

See also ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 87: "Finally, the Court points to the Martens Clause, whose continuing existence and applicability is not to be doubted, as an affirmation that the principles and rules of humanitarian law apply to nuclear weapons." It should be noted that the ICJ took into account the environmental impact of nuclear weapons throughout the opinion, and therefore its application of the Martens Clause "to nuclear weapons" can be interpreted as relevant to the protection of the natural environment. For States adopting a similar position in the context of the ILC's work on the protection of the environment in relation to armed conflicts, see the statements before the Sixth Committee of the UN General Assembly of Germany, 74th session, Agenda item 79, 5 November 2019; Mexico, 74th session, Agenda item 79, 1 November 2019; Norway, 74th session, Agenda item 79, 31 October 2019; and Peru, 74th session, Agenda item 79, 5 November 2019. See also Canada, Statement at the Conference on Environmental Protection and the Law of War, London, 3 June 1992. For States with a diverging view, see the statements before the Sixth Committee of the UN General Assembly of Belarus, 74th session, Agenda item 79, 1 November 2019; and Russian Federation, 74th session, Agenda item 79, 5 November 2019.

[456] Expressions of the public conscience with regard to the need to protect the natural environment are identifiable in the motivations that have led to examples set out in the Introduction of the present Guidelines, fn. 5, and para. 42, fn. 94.

Recommendation 17 – Conclusion of agreements to provide additional protection to the natural environment

Parties to a conflict should endeavour to conclude agreements providing additional protection to the natural environment in situations of armed conflict.

Commentary

202. This recommendation is based on multiple IHL rules that encourage and facilitate the conclusion of special agreements between belligerent parties for the purpose of enhancing the protection of civilians and civilian objects – including parts of the natural environment – in situations of armed conflict. In international armed conflicts, provisions in all four 1949 Geneva Conventions recall that "the High Contracting Parties may conclude other special agreements for all matters concerning which they may deem it suitable to make separate provision".[457] On the basis of these provisions a wide variety of agreements – including but not limited to those set out further below – may be concluded between States party to the Geneva Conventions. The notion of special agreements must be interpreted in a very broad sense, with no limitation on form or timing.[458]

203. In non-international armed conflicts, Article 3 common to the Geneva Conventions states that parties to a conflict "should further endeavour to bring into force, by means of special agreements, all or part of the other provisions of the present Convention".[459] While a narrow reading may seem to suggest that only agreements that explicitly bring into force other provisions of the four Geneva Conventions would be considered to be special agreements, in keeping with the purpose of the provision, special agreements providing for the implementation of customary international law or encompassing a broader set of IHL norms such as those of Additional Protocol I may be considered special agreements under common Article 3.[460] Accordingly, in the ICRC's view, parties to non-international armed conflicts should endeavour to conclude special agreements to protect the natural environment, such as those set out below.

204. These general provisions could be used as a basis to agree a myriad of additional protections for the natural environment.[461] Indeed, beyond these general provisions, IHL contains several more specific provisions which can form the basis of special agreements to protect the natural environment in more prescribed ways. The conclusion of such agreements is notably a means by which parties to an armed conflict can comply with the obligation to take all feasible passive precautions to protect civilian objects such as the natural environment.[462]

Demilitarized zones and non-defended localities

205. The conduct of hostilities may have particularly disastrous consequences when it occurs in areas of major environmental importance. Areas containing unique ecosystems or endangered species may be completely destroyed if they are not provided with effective and specific protection.[463]

[457] First Geneva Convention (1949), Art. 6; Second Geneva Convention (1949), Art. 6; Third Geneva Convention (1949), Art. 6; Fourth Geneva Convention (1949), Art. 7.

[458] For further details on special agreements under Article 6 of the First, Second and Third Geneva Conventions (1949), see ICRC, *Commentary on the First Geneva Convention*, 2016, pp. 347–352, in particular paras 957–968.

[459] For further details on special agreements under common Article 3, see *ibid.*, paras 841–860. See also Rule 18 of the present Guidelines.

[460] For further details on special agreements under common Article 3, see ICRC, *Commentary on the First Geneva Convention*, 2016, para. 846.

[461] Although not concluded between belligerent parties nor necessarily in situations of armed conflict, status of forces agreements may also provide an opportunity to agree additional protections for the natural environment. For example, the status of forces agreement between the United States and the Philippines contains provisions intended to pursue a preventive approach to environmental harm: United States and the Republic of Philippines, Agreement between the Government of the Republic of Philippines and the Government of the United States of America on Enhanced Defense Cooperation, Quezon City, 28 April 2014, Art. IX.

[462] Regarding the obligation of passive precautions, see Rule 9 of the present Guidelines. For further information in particular regarding the ICRC's proposal to establish a formal system to mark areas of major ecological importance or particular fragility as off-limits to all military activity, see the commentary on Rule 9 of the present Guidelines, paras 145–146.

[463] As an example of relevant good practice to reduce this risk, one of NATO's Allied Joint Environmental Protection Publications sets the objective of protecting and preserving natural resources when planning military operations: STANAG 2582, *Environmental Protection Best Practices and Standards for Military Camps in NATO Operations*, pp. H-1–H-3.

206. IHL provides for the establishment of demilitarized zones (by agreement)[464] and non-defended localities (either by agreement or by unilateral declaration)[465] in both international and non-international armed conflicts.

207. By agreeing or declaring a non-defended locality – which must be by definition "inhabited"[466] and thus can only be considered for populated areas of the natural environment – a party to a conflict can reduce the risk of exposing a particular locality to hostilities, thus enhancing the protection of both the population and the natural environment in the given area.

208. By establishing a demilitarized zone (which, unlike a non-defended locality, is not subject to the requirement of being inhabited), parties to a conflict can agree to keep certain identified areas of particular ecological significance or fragility off-limits to military operations.[467] By agreement, fighters and military equipment could be excluded from such zones, and the zones could only be attacked if they contain a military objective. Demilitarized zones could be established and implemented in peacetime or during an armed conflict.468 Areas of major environmental importance that could be designated as demilitarized zones include groundwater aquifers, key biodiversity areas (which could be national parks or endangered species habitats), ecological connectivity zones, or areas important for coastal protection, carbon sequestration or disaster prevention.[469] A range of resources exist that could be used to help identify the zones concerned, including within the framework of international environmental law. Examples include sites of major environmental importance appearing on the World Heritage List,[470] identified in the National Biodiversity Strategies and Action Plans of Parties to the Convention on Biological Diversity,[471] or listed in IUCN's conservation databases, such as the Red List of Ecosystems, the World Database of Key Biodiversity Areas and the World Database on Protected Areas.472 Many States also have domestic legislation that could be referred to when identifying areas of major environmental importance for designation as demilitarized zones.[473]

209. The ICRC has expressed concern that there is no guarantee that areas of major environmental importance will not become part of a battlefield, given the long-term environmental impact that this may entail.[474] In the ICRC's view, efforts to establish territorial (i.e. place-based) protection applicable to areas of major ecological importance in international and non-international armed conflicts should continue, and the establishment in peacetime of demilitarized zones of major environmental importance is one manner in which this can be achieved.[475] The ILC's Draft Principles on the Protection of the Environment in Relation to Armed Conflicts similarly address the

[464] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 36, p. 120: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule36; Additional Protocol I (1977), Art. 60. The Geneva Conventions also foresee the establishment of hospital and safety zones and localities (Article 23 of the First Geneva Convention and Article 14 of the Fourth Geneva Convention) and neutralized zones (Article 15 of the Fourth Geneva Convention). While these are primarily aimed at the protection of the wounded and sick, other particularly vulnerable persons and/or the civilian population, depending on where they are created they may also indirectly protect the natural environment.

[465] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 37, p. 122: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule37; Additional Protocol I (1977), Art. 59.

[466] Additional Protocol I (1977), Art. 59(2).

[467] On the use of demilitarized zones to protect the natural environment, see Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", pp. 44–45. In this vein, the *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* encourages parties to a conflict to agree that no hostile actions will be conducted in marine areas containing rare or fragile ecosystems or the habitat of depleted, threatened or endangered species or other forms of marine life: Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, p. 8, para. 11. See also HPCR, *Manual on International Law Applicable to Air and Missile Warfare*, Rule 99, p. 276, which invites belligerent parties "to agree at any time to protect persons or objects not otherwise covered by this Manual".

[468] For examples of demilitarized zones established in peacetime, including the Antarctic and the Åland Islands, see ILC, Draft Principles on the Protection of Environment in Relation to Armed Conflicts (2019), commentary on Principle 4, p. 222, fn. 996.

[469] On this point, see also UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 54; and IUCN, Draft Convention on the Prohibition of Hostile Military Activities in Protected Areas (1996), Art. 1.

[470] As established by Article 11 of the 1972 World Heritage Convention. These are identified as natural heritage in the database maintained by UNESCO: https://whc.unesco.org/en/list/.

[471] In accordance with Article 6 of the 1992 Convention on Biological Diversity.

[472] For these databases and others, see IUCN's Conservation Tools web page: https://www.iucn.org/resources/conservation-tools.

[473] For examples of domestic legislation referring to the protection of environmental areas in Australia, Italy and Japan, see ILC, Draft Principles on the Protection of Environment in Relation to Armed Conflicts (2019), commentary on Principle 4 (Designation of protected zones), p. 224, para. 13.

[474] ICRC, *Strengthening Legal Protection for Victims of Armed Conflicts*, pp. 17–19.

[475] To encourage States to designate areas considered particularly vulnerable or important from an environmental standpoint as demilitarized zones, at the 33rd International Conference of the Red Cross and Red Crescent, Geneva, December 2019, the ICRC promoted a model pledge on this issue. Burkina Faso subsequently made such a pledge.

designation of protected zones of major environmental importance.[476] Demilitarized zones can be agreed in an ad hoc manner between States bilaterally at any time and between State and non-state actors during a conflict.

210. There have also been calls by the ICRC, UNEP[477] and IUCN[478] for multilateral efforts to designate such zones more systematically. The establishment of a system of protected zones could be based, for example, on the existing system of enhanced protection for cultural property. Under that system, cultural property of special significance for humanity is entered on a list and the parties concerned undertake never to use it for military purposes or to shield military sites; the property is thus protected from attack for as long as it is not used for military purposes.[479]

Cultural property

211. There is often an overlap between areas of major environmental importance and areas of cultural importance. Indeed, sites on the World Heritage List established by the World Heritage Convention include those listed as both cultural and natural heritage.

212. The 1954 Hague Convention for the Protection of Cultural Property invites States Parties to conclude special agreements to enhance protection of cultural property in both international and non-international armed conflicts.[480] The 1999 Second Protocol to this Convention, which entered into force on 9 March 2004, establishes a system of enhanced protection under which cultural property meeting certain conditions is entered on a list, and Parties to the Protocol undertake never to use it for military purposes or to shield military sites.[481]

Works and installations containing dangerous forces

213. Article 56(6) of the 1977 Additional Protocol I urges States to conclude further agreements to provide additional protection to works and installations containing dangerous forces beyond the dams, dykes and nuclear electrical generating stations already protected by Article 56 of the Protocol.[482] Agreements of this kind can be used to extend special protection to objects such as fuel storage facilities, factories containing toxic products, or petroleum refineries. Objects such as these contain dangerous forces, and attacks on them thus risk serious damage to the natural environment and severe losses among the civilian population.

[476] See ILC, Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2019), commentary on Principle 4, pp. 221–224, and commentary on Principle 17, pp. 260. In the context of the ILC's work on the protection of the environment in relation to armed conflicts, States, including Denmark, Finland, Germany, Greece, Iceland, Iran, Italy, Morocco, Norway, Sweden, Peru and Portugal, expressed general support for the inclusion of a draft principle on the designation of areas of major environmental and cultural importance as protected zones, while some States, including the Russian Federation and Turkey, expressed caution. See the statements before the Sixth Committee of the UN General Assembly of Iran, 70th session, Agenda item 83, 10 November 2015; Italy, 70th session, Agenda item 81, 6 November 2015; Germany, 74th session, Agenda item 79, 5 November 2019; Greece, 74th session, Agenda item 79, 31 October 2019; Morocco, 74th session, Agenda item 79, 5 November 2019; Norway (on behalf of the Nordic countries), 74th session, Agenda item 79, 31 October 2019; Peru, 74th session, Agenda item 79, 5 November 2019; Portugal, 74th session, Agenda item 79, 5 November 2019; Russian Federation, 73rd session, Agenda item 82, 31 October 2018 and 74th session, Agenda item 79, 5 November 2019; and Turkey, 73rd session, Agenda item 82, 31 October 2018.

[477] UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 54.

[478] IUCN, Draft Convention on the Prohibition of Hostile Military Activities in Protected Areas (1996). See also IUCN's work to designate certain transboundary conservation areas as "parks for peace": https://www.cbd.int/peace/about/peace-parks/.

[479] The establishment of such a system of protected zones could also build, for example, on the sites of natural heritage on the "List of World Heritage in Danger" established by Article 11(4) of the 1972 World Heritage Convention, under which sites of natural heritage are listed when they are threatened by the outbreak or the threat of an armed conflict.

[480] Hague Convention for the Protection of Cultural Property (1954), Arts 19(2) and 24. Regarding when the IHL rules governing cultural property may protect the natural environment, see Rule 12 of the present Guidelines.

[481] See Second Protocol to the Hague Convention for the Protection of Cultural Property (1999), Arts 10–12.

[482] On the special protection afforded to dams, dykes and nuclear electrical generating stations, see Rule 11 of the present Guidelines.

Recommendation 18 – Application to non-international armed conflicts of international humanitarian law rules protecting the natural environment in international armed conflicts

If not already under the obligation to do so under existing rules of international humanitarian law, each party to a non-international armed conflict is encouraged to apply to that conflict all or part of the international humanitarian law rules protecting the natural environment in international armed conflicts.

Commentary

214. Although many rules of IHL that protect the natural environment apply equally in both international and non-international armed conflicts, there are nevertheless certain rules that either do not apply to non-international armed conflicts[483] or which are only arguably applicable in these conflicts.[484]

215. Common Article 3 of the 1949 Geneva Conventions encourages parties to a non-international armed conflict to endeavour to bring into force all or part of other IHL provisions.[485] In line with this provision, parties to such conflicts are encouraged to apply those rules of IHL that enhance protection of the natural environment, without differentiating based on the conflict's classification as international or non-international. Indeed, as can be said in relation to civilian harm, legal explanations of the classification of a conflict do not alter the damage wrought by conflict on the natural environment in practice, nor do they lighten the cost of such damage that future generations must bear.[486]

216. A party to a non-international armed conflict can apply such rules unilaterally. They can also opt to conclude special agreements with other parties to the conflict to apply relevant rules.[487]

[483] For example, Rule 4.A of the present Guidelines, regarding the prohibition of attacking the natural environment by way of reprisal, binds States party to the 1977 Additional Protocol I in international armed conflicts.

[484] See e.g. Rule 1 of the present Guidelines on due regard for the natural environment in military operations, and Rule 3 of the present Guidelines on the prohibition of using the destruction of the natural environment as a weapon.

[485] This includes not only other provisions of the Geneva Conventions, but also relevant rules of customary international humanitarian law applicable in international armed conflicts, as well as the broader set of norms encompassed in the 1977 Additional Protocol I. See ICRC, *Commentary on the First Geneva Convention*, 2016, para. 846.

[486] For statements in the context of the ILC's work on the protection of the environment in relation to armed conflicts emphasizing that both international and non-international armed conflicts can have equally severe environmental consequences, see the statements before the Sixth Committee of the UN General Assembly of Norway (on behalf of the Nordic countries), 74th session, Agenda item 79, 31 October 2019; Sierra Leone, 74th session, Agenda item 79, 1 November 2019; and South Africa, 73rd session, Agenda item 82, 31 October 2018. See also the statement of New Zealand, 74th session, Agenda item 79, 31 October 2019, noting that the obligations its military operates under for an international armed conflict, as a matter of policy, also apply to non-international armed conflicts. For States expressing caution regarding the application to non-international armed conflicts of rules applicable in international armed conflicts, see the statements before the Sixth Committee of the UN General Assembly of China, 74th session, Agenda item 79, 31 October 2019; and Iran, 74th session, Agenda item 79, 1 November 2019.

[487] For examples of agreements that can provide additional protection to the natural environment, see Rule 17 of the present Guidelines.

PART III: PROTECTION OF THE NATURAL ENVIRONMENT AFFORDED BY RULES ON SPECIFIC WEAPONS

217. Part III sets out the protections afforded to the natural environment by rules on specific weapons. It addresses both customary law and the treaty rules binding on States Parties. For structural coherence, the customary rules are addressed first, followed by the relevant treaty rules where they provide greater protection.

Rule 19 – Prohibition of using poison or poisoned weapons

The use of poison or poisoned weapons is prohibited.

Commentary

218. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[488] The prohibition of poison or poisoned weapons is, among other things, contained in Article 23(a) of both the 1899 and 1907 Hague Regulations, was affirmed as customary in character by the ICJ's Nuclear Weapons Advisory Opinion[489] and is identified as a war crime in international armed conflicts under Article 8(2)(b)(xvii) of the 1998 ICC Statute. In 2010, the prohibition was further identified as a war crime in non-international armed conflicts under Article 8(2)(e)(xiii) of the ICC Statute, which applies to States that have ratified this amendment.

219. Where poison or poisoned weapons are employed against an object forming part of the natural environment as a means of poisoning humans (for example, where a water source is poisoned for the purpose of killing or injuring persons who will use that water source), this rule protects the natural environment indirectly through its protection of humans. Cases in which poison or a poisoned weapon is used for a purpose other than killing or injuring humans, while not covered by this rule, may nevertheless be subject to other rules set out in the present Guidelines. For example, using poison against livestock will be subject to Rule 5 (on the principle of distinction) and Rule 21 (on chemical weapons); using poison against vegetation will be subject to Rule 22 (on herbicides); and incidental damage to the natural environment caused by the use of such a weapon will be subject to Rule 7 (on proportionality) and Rule 8 (on precautions).

Definition

220. The Hague Regulations do not define the phrase "poison or poisoned weapons". The ICJ, while observing that different interpretations exist as to what the terms "poison" and "poisoned weapons" mean,[490] has stated that they have "been understood, in the practice of States, in their ordinary sense as covering weapons whose prime, or even exclusive, effect is to poison or asphyxiate".[491] Some States have expressed understandings that weapons are only prohibited by this rule when they are designed to kill or injure by the effect of poison. This interpretation does not require that poison be the primary or exclusive injury mechanism, but rather that it must be an "intended" injury mechanism of the substance or weapon employed.[492] A focus on design is similarly reflected in treaties prohibiting or limiting the use of certain weapons.[493] For example, the definition of a "chemical weapon" under the 1993 Chemical Weapons Convention includes munitions and devices "specifically designed to cause death or other harm through the toxic properties" of toxic chemicals, while excluding from its scope the use of toxic chemicals "intended for purposes not prohibited" by the Convention, including "military purposes not connected with the use of

[488] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 72 and commentary, p. 251: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule72 and related practice.

[489] ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, paras 80–82.

[490] *Ibid.*, para. 55.

[491] *Ibid.*

[492] The United Kingdom and the United States clarified their understanding of the terms to this effect in their written submissions to the ICJ in its Nuclear Weapons Advisory Opinion: United Kingdom, 16 June 1995, para. 3.60; and United States, 20 June 1995, p. 24. For a further discussion, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 72, p. 253: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule72; and K. Dörmann, *Elements of War Crimes under the Rome Statute of the International Criminal Court: Sources and Commentary*, ICRC, Geneva/Cambridge University Press, Cambridge, 2003, pp. 281–282.

[493] The use of the term "design" occurs in e.g. Treaty on the Non-Proliferation of Nuclear Weapons (1968), Art. III; Protocol III to the CCW (1980), Art. 1(1); Biological Weapons Convention (1972), Arts I and IX; Chemical Weapons Convention (1993), Art. II(1)(b) and (c); Protocol IV to the CCW (1995), Art. 1; Amended Protocol II to the CCW (1996), Arts 2 and 3(5); Anti-Personnel Mine Ban Convention (1997), Art. 2(1) and (2); and Convention on Cluster Munitions (2008), Arts 1(2) and 2.

chemical weapons and not dependent on the use of toxic properties of chemicals as a method of warfare".[494] Where a weapon's prime or exclusive effect is poisoning, this will indicate that the weapon is intended or designed to kill or injure by poisoning.

Effects on the natural environment

221. Poison or poisoned weapons are prohibited when they are intended or designed to kill or injure humans. The way in which these means are employed may nevertheless impact the natural environment, as when parts of the environment are poisoned for the purpose of killing or injuring humans. The effects of poison on the natural environment will vary depending on the nature of the substance used but could include wide disruption to ecosystems. In particular, water sources are a part of the natural environment that may be especially at risk of poisoning owing to the wide range of effects that an attack with poison or a poisoned weapon may have.[495] The effects of the poisoning of water sources are difficult to control[496] and may include the killing of plants and animals, such as livestock that drink from contaminated water or feed from contaminated vegetation. The death of flora and fauna from water-source poisoning can in turn have wider effects on the social and economic life of local populations. For example, livestock such as cows or water buffalo may be sources of meat, milk and dairy products, as well as energy and crop fertilizer (fuel dung and manure); fishing, waterfowl hunting and rice and millet cultivation in marshlands may be central to local economies; and river reeds may be used as the main source of building material for dwellings.[497]

Related prohibitions

222. Other rules may also apply to the use of poison or poisoned weapons. The consequence of overlapping prohibitions is simply that in a given concrete circumstance, several rules may ban the use of poison or poisoned weapons.

223. Of particular relevance, the poisoning of, for example, a water source used by humans may also fall under the prohibition of attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population (see Rule 10 of the present Guidelines).[498]

224. Depending on their composition, "poison or poisoned weapons", when they constitute toxic chemicals under the Chemical Weapons Convention, may also be identified as chemical weapons. In this case, their use will also violate the prohibition of using chemical weapons (see Rule 21 of the present Guidelines). Likewise, certain biological weapons, including toxins, that cause injury through poisoning can also constitute "poison or poisoned weapons". In this case, their use will also violate the prohibition of using biological weapons (see Rule 20 of the present Guidelines). Finally, the use of nuclear or radiological materials in weapons or other means of warfare may also constitute use of "poison or poisoned weapons". When such materials are used against an object forming part of the natural environment with intent to poison humans, they are covered by this rule. However, it is unsettled whether nuclear weapons qualify as poisoned weapons owing to disagreement about whether one of their designed effects is to poison.[499]

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[494] Chemical Weapons Convention (1993), Art. II(1)(a) and (9)(c).

[495] For examples of the poisoning of water in times of armed conflict or other situations of violence, see the Water Conflict Chronology list maintained by the Pacific Institute: http://www2.worldwater.org/conflict/list/. Note that these examples are not exclusively taken from situations of armed conflict.

[496] This is noted by e.g. Israel, *Rules of Warfare on the Battlefield*, 2006, p. 14.

[497] For reports of alleged poisoning of the water in the Mesopotamian Marshlands and its potential effects, see UNEP, Division of Early Warning and Assessment, *The Mesopotamian Marshlands: Demise of an Ecosystem*, UNEP/DEWA/TR.01-3, UNEP, Nairobi, 2001, pp. 16 and 33; and UN General Assembly, *Interim report on the situation of human rights in Iraq prepared by Mr. Max van der Stoel, Special Rapporteur*, UN Doc. A/48/600, 18 November 1993, Annex, para. 45.

[498] For further consideration of the poisoning of water indispensable to the survival of the civilian population, see M. Tignino, "Water during and after armed conflicts: What protection in international law?", *International Water Law*, Vol. 1, No. 4, 2016, pp. 46 and 49. See also ICC, *The Prosecutor* v. *Omar Hassan Ahmad Al Bashir*, Pre-Trial Chamber I, Decision on the Prosecution's Application for a Warrant of Arrest, 4 March 2009, para. 91, in which the prosecutor submitted that wells were poisoned to deprive villagers of water needed for survival.

[499] For the view that the use of nuclear weapons would necessarily violate the prohibition of poison or poisoned weapons, see States' written submissions to the ICJ in its Nuclear Weapons Advisory Opinion: e.g. Marshall Islands, 22 June 1995, Section 5, pp. 5–6; Nauru, 15 June 1995, p. 11; Solomon Islands, 19 June 1995, p. 62, para. 3.77; and Sweden, 20 June 1995, p. 5. For the view that the use of nuclear weapons does not violate the prohibition of poison or poisoned weapons, see e.g. United Kingdom, Written statement submitted to the ICJ, 16 June 1995, paras 3.59 and 3.60; and United States, Written statement submitted to the ICJ, 20 June 1995, p. 24.

Rule 20 – Prohibition of using biological weapons

The use of biological weapons is prohibited.

Commentary

225. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[500] In treaty law, the prohibition is set down in the first operative paragraph of the 1925 Geneva Gas Protocol and in Article 1 of the 1972 Biological Weapons Convention. The former applies in international armed conflicts, while the latter applies in all circumstances, including in both international and non-international armed conflicts.

226. This rule provides direct protection to the natural environment, as it prohibits the use of biological weapons against animals and plants. It also provides indirect protection in cases where the incidental effects of the use of biological weapons against an object or person not forming part of the natural environment include damage to the natural environment, for example if disease spreads to a species of livestock from the local human population targeted with a disease-causing biological weapon or if biological weapons are dispersed in water supplies in order to harm humans.[501]

Definition

227. The Biological Weapons Convention does not expressly define the term "biological weapons" but rather prohibits the development, production, stockpiling or acquisition by other means, or retention of (1) microbial or other biological agents or toxins, whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes; and (2) weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.[502]

228. The comprehensive prohibition of biological weapons therefore includes both biological agents and toxins, whether naturally occurring or synthetically produced, and their use against humans, animals and plants.[503] Toxins are poisonous products of living organisms; unlike biological agents, they are inanimate and not capable of reproducing themselves.[504]

Effects on the natural environment

229. Effects of biological agents and toxins on the natural environment could include, for example, causing disease in animals and plants, including death or destruction of livestock and crops or the reduction of wild species of animals below the level at which the population can survive, which may in turn disrupt the equilibrium of an ecological community.[505] Historical examples involving the development or use of biological weapons to target parts of the natural environment are reported to have included the lacing of cattle cakes with anthrax spores, with the intent to cripple domestic animal production,[506] and the use of fungal plant pathogens to cause disease epidemics in important food crops.[507]

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[500] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 73 and commentary, p. 256: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule73 and related practice.

[501] The possibility of dispersing biological agents to animals and water supplies is considered in World Health Organization (WHO), *Health Aspects of the Use of Chemical and Biological Weapons*, WHO, Geneva, 1970, e.g. pp. 76–78 and Annex 5. The targeting of water supplies with biological weapons to kill or injure humans will also engage the prohibition of the use of poison or poisoned weapons set out in Rule 19 of the present Guidelines.

[502] Biological Weapons Convention (1972), Art. 1.

[503] See additional understandings on Article 1 from the Third and Fourth Review Conferences of the Biological Weapons Convention, confirming the scope as including "microbial or other biological agents or toxins harmful to plants and animals, as well as humans": Eighth Review Conference of the States Parties to the Biological Weapons Convention, Additional understandings and agreements reached by previous Review Conferences relating to each article of the Convention, UN Doc. BWC/CONF.VIII/PC/4, 31 May 2016, p. 3, para. 6.

[504] J. Goldblat, "The Biological Weapons Convention: An overview", *International Review of the Red Cross*, Vol. 37, No. 318, 1997, pp. 253–254.

[505] WHO, *Health Aspects of the Use of Chemical and Biological Weapons*, pp. 16 and 77.

[506] For a historical overview of anti-animal biological weapons programmes, see P. Millet, "Antianimal biological weapons programs", in M. Wheelis, L. Rózsa and M. Dando (eds), *Deadly Cultures: Biological Weapons since 1945*, Harvard University Press, Cambridge (MA), 2006, pp. 224–235. For the historical example provided here, see Wheelis/Rózsa/Dando (eds), *Deadly Cultures: Biological Weapons since 1945*, p. 4.

[507] For a historical overview of anti-crop biological weapons programmes, see S.M. Whitby, "Anticrop Biological Weapons Programs", in Wheelis/Rózsa/Dando (eds), *Deadly Cultures: Biological Weapons since 1945*, pp. 213–223.

230. Separate from the damage that may arise from the use of biological weapons, the natural environment may also be impacted by the destruction or disposal of such weapons. Accordingly, Article 2 of the Biological Weapons Convention requires that "in implementing the provisions of this Article all necessary safety precautions shall be observed to protect ... the environment".

Related prohibitions

231. Other rules may also apply to the use of biological weapons. The consequence of overlapping prohibitions is simply that in a given concrete circumstance, several rules may ban the use of such weapons.

232. A biological weapon may also, depending on its composition, constitute a prohibited poison or poisoned weapon (see Rule 19 of the present Guidelines)[508] or a prohibited chemical weapon, given that the Chemical Weapons Convention also prohibits the use of toxins as weapons (see Rule 21 of the present Guidelines).[509] Certain herbicides may also constitute prohibited biological weapons (see Rule 22.B of the present Guidelines).

[508] See the commentary on Rule 19 of the present Guidelines, para. 224.

[509] There is some overlap between the substances banned by the 1972 Biological Weapons Convention and the 1993 Chemical Weapons Convention. As observed by Goldblat, the Biological Weapons Convention "covers toxins produced biologically, as well as those produced by chemical synthesis. Since toxins are chemicals by nature, their inclusion in the BW [Biological Weapons] Convention was a step towards the projected ban on chemical weapons": Goldblat, "The Biological Weapons Convention: An overview", p. 254. For further details regarding prohibited chemical weapons, see Rule 21 of the present Guidelines.

Rule 21 – Prohibition of using chemical weapons

The use of chemical weapons is prohibited.

Commentary

233. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[510] The prohibition is set down in a number of treaties, including the 1899 Hague Declaration concerning Asphyxiating Gases,[511] the 1925 Geneva Gas Protocol[512] and the 1993 Chemical Weapons Convention,[513] and has been identified as a war crime in the 1998 ICC Statute.[514]

234. In light of the definition of "chemical weapons" in the Chemical Weapons Convention, this rule provides direct protection to animals (for protection afforded to vegetation, see Rule 22 of the present Guidelines). It provides indirect protection to the natural environment when the incidental effects of the use of chemical weapons include damage to objects forming part of the natural environment (see Rules 7 and 8 of the present Guidelines).

Definition

235. The Chemical Weapons Convention describes "chemical weapons" as including "toxic chemicals", which it defines as "any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals".[515] This includes toxins, which are toxic chemicals that may be of biological origin. Under the Convention, "chemical weapons" do not, however, include toxic chemicals used for "[m]ilitary purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare".[516] Nor do they include riot control agents used for law enforcement purposes.[517]

236. The preamble to the Chemical Weapons Convention notes "the prohibition, embodied in the pertinent agreements and relevant principles of international law, of the use of herbicides as a method of warfare".[518] Nevertheless, given the aforementioned definition of a toxic chemical, the Convention does not prohibit the use of herbicides as a chemical weapon unless they are used to harm humans or animals.[519]

Effects on the natural environment

237. The effects of chemical weapons (such as nerve agents, blister agents, choking agents, blood agents or toxins) on the natural environment can be severe and may include widespread death among animals;[520] damage to or destruction of plant species;[521] long-term pollution of the air, water supplies and soil;[522] disruption of ecological systems (e.g. the migration of species of birds from contaminated areas);[523] or deforestation resulting in erosion and agricultural losses.[524]

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[510] See Henckaerts/Doswald-Beck (eds), *Customary International Humanitarian Law*, Rule 74 and commentary, p. 259: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule74 and related practice.

[511] Hague Declaration concerning Asphyxiating Gases (1899), operative para. 1. The Declaration applies in international armed conflicts, as per operative para. 2.

[512] Geneva Gas Protocol (1925), Preamble and operative para. 1. The Protocol applies in international armed conflicts, as per operative para. 6.

[513] Chemical Weapons Convention (1993), Art. 1, according to which the Convention applies in all circumstances, including in non-international armed conflicts.

[514] ICC Statute (1998), Art. 8(2)(b)(xviii) and (e)(xiv), which identify the employment of such weapons as war crimes in international and non-international armed conflicts, respectively.

[515] Chemical Weapons Convention (1993), Art. 2(2).

[516] *Ibid.*, Art. 2(9)(c).

[517] *Ibid.*, Art. 2(9)(d).

[518] *Ibid.*, preambular para. 7.

[519] The preamble reflects a compromise which included the removal of herbicides from the scope of the Convention. See W. Krutzsch, "The Preamble", in W. Krutzsch, E. Myjer and R. Trapp (eds), *The Chemical Weapons Convention: A Commentary*, Oxford University Press, Oxford, 2014, pp. 54–55. The circumstances in which herbicides may be lawfully used remain the subject of a longstanding and ongoing debate. In this context, see, further, Rule 22 of the present Guidelines.

[520] UN, *Report of the Secretary-General on Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, UN Doc. A/7575/Rev.1 and S/9292/Rev.1, UN, New York, 1969, p. 14.

[521] *Ibid.*, p. 37. See also Rule 22.A of the present Guidelines regarding herbicides of a nature to be prohibited chemical weapons.

[522] UN, *Report of the Secretary-General on Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, p. 71.

[523] *Ibid.*, pp. 71–72.

[524] *Ibid.*, p. 72.

238. The destruction of chemical weapons may also cause damage to the natural environment if not conducted in accordance with relevant standards.[525] For example, chemical weapons dumped into oceans for disposal following the Second World War are reported to continue to pose risks to marine environments today.[526]

Related prohibitions

239. Other rules may also apply to the use of chemical weapons. The consequence of overlapping prohibitions is simply that in a given concrete circumstance, several rules may ban the use of such weapons.

240. Depending on their composition, chemical weapons may also constitute prohibited poison or poisoned weapons (see Rule 19 of the present Guidelines)[527] or prohibited biological weapons (see Rule 20 of the present Guidelines).[528] The use of certain herbicides may also violate the prohibition of the use of chemical weapons(see Rule 22.A of the present Guidelines).[529]

[525] In this respect, Article 4(1) of the 1993 Chemical Weapons Convention states: "Each State Party, during transportation, sampling, storage and destruction of chemical weapons, shall assign the highest priority to ... protecting the environment. Each State Party shall transport, sample, store and destroy chemical weapons in accordance with its national standards for safety and emissions." A corresponding provision can be found in Article 7(3) of the Convention, which states: "Each State Party, during the implementation of its obligations under this Convention, shall assign the highest priority to ... protecting the environment." Regarding safe destruction procedures, see R. Trapp and P. Walker, "Article IV: Chemical weapons", in W. Krutzsch, E. Myjer and R. Trapp (eds), *The Chemical Weapons Convention: A Commentary*, Oxford University Press, Oxford, 2014, pp. 144–146.

[526] M.I. Greenberg, K.J. Sexton and D. Vearrier, "Sea-dumped chemical weapons: Environmental risk, occupational hazard", *Clinical Toxicology*, Vol. 54, No. 2, 2016, pp. 79–91. See also J. Hart, "Background to selected environmental and human health effects of chemical warfare agents", in T.A. Kassim and D. Barceló (eds), *Environmental Consequences of War and Aftermath*, Springer, Berlin, 2009, pp. 9–10. For an example of State cooperation to manage chemical remnants of war, see e.g. the Chemical Munitions Search and Assessment project among the Baltic States: www.chemsea.eu.

[527] Regarding chemical weapons of a nature to be prohibited poison or poisoned weapons, see the commentary on Rule 19 of the present Guidelines, para. 224.

[528] Regarding chemical weapons of a nature to be prohibited biological weapons, see the commentary on Rule 20 of the present Guidelines, para. 232 and fn. 509.

[529] Regarding herbicides of a nature to be prohibited chemical weapons, see Rule 22.A of the present Guidelines.

Rule 22 – Prohibition of using herbicides as a method of warfare

The use of herbicides as a method of warfare is prohibited if they:

A. are of a nature to be prohibited chemical weapons;

B. are of a nature to be prohibited biological weapons;

C. are aimed at vegetation that is not a military objective;

C. would cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which may be expected to be excessive in relation to the concrete and direct military advantage anticipated; or

E. would cause widespread, long-term and severe damage to the natural environment.

Commentary

241. This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts.[530] In 1993, the negotiators of the Chemical Weapons Convention included in the treaty's preamble recognition of "the prohibition, embodied in pertinent agreements and relevant principles of international law, of the use of herbicides as a method of warfare".[531] The Convention does not, however, define what use qualifies as a method of warfare, and some States have reserved the right to use herbicides against vegetation. This rule lays down the circumstances in which herbicides may not be used.[532]

242. This rule protects the natural environment directly, given that it regulates the use of herbicides, which by their nature target vegetation, which in turn forms part of the natural environment. It also provides indirect protection to the natural environment given that the use of herbicides can have other unintended effects on the natural environment (such as the contamination of water sources or food supplies or injury to animals).

243. In light of the clear trend in favour of protecting the natural environment against deliberate damage, any use of herbicides in warfare is likely to raise concerns.[533] In the following cases, it is clear that their use as a method of warfare is prohibited.

Of a nature to be prohibited chemical weapons

244. The use of herbicides in armed conflict to harm humans or animals will violate the general customary prohibition of the use of chemical weapons.[534] The Chemical Weapons Convention bans, among other things, toxic chemicals,

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[530] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 76 and commentary, pp. 265–266: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule76 and related practice.

[531] Chemical Weapons Convention (1993), Preamble.

[532] For an overview of the discussion of the application of the 1993 Chemical Weapons Convention to herbicides at the time of drafting, see Dinstein, "Protection of the environment in international armed conflict", pp. 538–539. For some of the considerations leading to this, see also Second Review Conference of the Parties to the ENMOD Convention, Geneva, 14–18 September 1992, Final Declaration, UN Doc. ENMOD/CONF.II/12, 22 September 1992, pp. 11–12; UN General Assembly, Res. 47/52 E, 9 December 1992, para. 3; Argentina and Sweden, Statements at the Second Review Conference of the Parties to the ENMOD Convention, Geneva, 14–18 September 1992, *United Nations Disarmament Yearbook*, Vol. 17, 1993, p. 234; and Netherlands, Lower House of Parliament, Debate on Chemical Weapons, *Tweede Kamer* 68, 25 April 1995, p. 68-4105. The United States considers the Chemical Weapons Convention's prohibitions to be inapplicable to herbicides: United States, *Law of War Manual*, 2015 (updated 2016), p. 416, para. 6.17.2. That said, the United States has renounced as a matter of policy the use of herbicides in armed conflict except within US installations or around their defensive perimeters: United States, Executive Order 11850 – Renunciation of certain uses in war of chemical herbicides and riot control agents, 8 April 1975, which states: "The United States renounces, as a matter of national policy, first use of herbicides in war except use, under regulations applicable to their domestic use, for control of vegetation within U.S. bases and installations or around their immediate defensive perimeters." The circumstances in which herbicides may lawfully be used in armed conflict remain the subject of debate.

[533] This is particularly the case given the historical link between the use of herbicides such as Agent Orange during the Vietnam War and the subsequent efforts of the international community to put in place greater protection for the natural environment in times of armed conflict: UNEP, *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law*, p. 8. See also Dinstein, "Protection of the environment in international armed conflict", p. 538; and Netherlands, *Toepassing Humanitair Oorlogsrecht*, 1993, p. IV-8, para. 14, and p. V-9, para. 7, which state that Article 35 of the 1977 Additional Protocol I was drafted in light of the large-scale use of defoliants in the Vietnam War. For a potentially less controversial use of herbicides, see the US policy of using herbicides for control of vegetation within or around the immediate defensive perimeters of US bases and installations, fn. 532 above.

[534] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 76, p. 267: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule76. For the customary prohibition of the use of chemical weapons, see *ibid.*, Rule 74 and commentary, p. 259: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule74 and related practice.

which it defines as "[a]ny chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals", "except where intended for purposes not prohibited under this Convention".[535] "Purposes not prohibited" include "[m]ilitary purposes not connected with the use of chemical weapons and *not dependent on the use of the toxic properties of chemicals as a method of warfare*".[536] The Chemical Weapons Convention therefore prohibits the use of herbicides when they are used to harm humans or animals but not when they exclusively harm plants.

245. Accordingly, all States must ensure that any herbicide selected for use in armed conflict does not constitute a chemical weapon. For example, a 1969 report of the UN secretary-general noted that "some herbicides, particularly those containing organic arsenic, are also toxic for man and animals".[537] In this respect, a 1970 report by the World Health Organization (WHO), which considered the health aspects of chemical weapons observed that "it must be borne in mind that the military employment of anti-plant chemicals may lead to their intake, by humans, in water and food, in dosages far higher than those experienced when the same chemicals are used for agricultural and other purposes".[538]

Of a nature to be prohibited biological weapons

246. Regardless of whether they are used against objects constituting military objectives, the use of herbicides consisting of or containing biological agents will violate the customary rule prohibiting the use of biological weapons.[539] In this regard, the 1972 Biological Weapons Convention prohibits all biological weapons, including when intended for use against plants.[540] Examples of herbicides containing biological agents were considered in the 1969 report of the UN secretary-general, which observed that "plant pathogens might be used for military purposes"[541] and gave examples of bacteriological agents that could be used to target plants, such as leaf blight of rice and gummosis of sugar cane.[542] Such agents would today fall under the definition of a biological weapon prohibited by the Biological Weapons Convention and customary law.

Aimed at vegetation that is not a military objective

247. Even if herbicides are not of a nature to be prohibited chemical or biological weapons, their use on vegetation, when such use constitutes an attack, will violate the general rule of distinction if the vegetation is not a military objective.[543] In this regard, and given the wide potential spread of herbicides, it is particularly important to underscore that a large expanse of, for example, forest must not be deemed broadly to be a military objective simply because combatants are located in a small portion of it; only the portion of the forest that has been identified as directly contributing to military action will be liable to become a military objective.[544]

248. It is also worth emphasizing that – given that to qualify as a military objective, a part of the natural environment must make an effective contribution to military action, rather than merely to the more general category of war-sustaining capabilities[545] – the selection of a crop, for example, as the target of a herbicide attack because of its importance to the diet or economy of the adversary (which, depending on the State, could include rubber, rice,

[535] Chemical Weapons Convention (1993), Art. 2(2) and (1)(a).
[536] *Ibid.*, Art. 2(9)(c) (emphasis added).
[537] UN, *Report of the Secretary-General on Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, p. 14.
[538] WHO, *Health Aspects of the Use of Chemical and Biological Weapons*, p. 57.
[539] For the customary prohibition of the use of biological weapons, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 73 and commentary, p. 256: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule73 and related practice.
[540] See additional understandings on Article 1 from the Third and Fourth Review Conferences of the Biological Weapons Convention, confirming the scope as including "microbial or other biological agents or toxins harmful to plants and animals, as well as humans": Eighth Review Conference of the States Parties to the Biological Weapons Convention, Additional understandings and agreements reached by previous Review Conferences relating to each article of the Convention, UN Doc. BWC/CONF.VIII/PC/4, 31 May 2016, p. 3, para. 6.
[541] UN, *Report of the Secretary-General on Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, p. 18.
[542] *Ibid.*, p. 47.
[543] For the rule of distinction as applied to the natural environment, see Rule 5 of the present Guidelines. For the prohibition of indiscriminate attacks, see Rule 6 of the present Guidelines.
[544] Droege/Tougas, "The protection of the natural environment in armed conflict: Existing rules and need for further legal protection", p. 28.
[545] For more details on this distinction, including the diverging view of the United States in this respect, see Rule 5 of the present Guidelines.

wheat, poppies, coca or potatoes)[546] would violate this rule.[547] Such an attack may also violate the prohibition of attacking objects indispensable to the survival of the civilian population (see Rule 10 of the present Guidelines).

Excessive incidental loss

249. Even in instances where vegetation has become a military objective, attacks on vegetation with herbicides will violate the general rule of proportionality if the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects including parts of the natural environment, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.[548] With regard to the use of herbicides, the military advantage anticipated is typically the denial of sanctuary and freedom of movement to the enemy in areas with dense foliage,[549] but this must be balanced against the foreseeable incidental effects of the attack, such as damaging wider areas or other vegetation or contaminating water supplies,[550] including indirect (sometimes referred to as "reverberating") effects, in so far as they are foreseeable, such as ingestion by animals and lasting impacts on human health.[551] In this respect, the WHO has stated that the use of anti-crop agents, such as herbicides, could have "a profound long-term effect on human health" resulting from a major reduction in the quality or quantity of the food supply.[552]

Widespread, long-term and severe damage to the natural environment

250. Attacks on vegetation by herbicides are prohibited if the attack may be expected to cause widespread, long-term and severe damage to the natural environment.[553] The application of this rule to the use of herbicides is of particular historical significance, given that the inclusion of the prohibition of widespread, long-term and severe damage to the natural environment contained in Article 35 of the 1977 Additional Protocol I was motivated by the international outcry over the devastating effects of herbicides such as Agents Orange, White and Blue on the natural environment and human life during the Vietnam War.[554] The ecological consequences of the use of herbicides in this armed conflict are multifarious and well documented,[555] and include the conversion of approximately 30 per cent of South Vietnam's mangroves to wasteland for decades,[556] long-term changes in the biotic community[557] and a reduction in the nutrient content of the soil and corresponding loss of productivity of the affected land.[558]

251. In addition, States party to the 1976 ENMOD Convention agreed in 1992 that military or any other hostile use of herbicides as an environmental modification technique is a prohibited method of warfare if such use upsets the ecological balance of a region, thus causing widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.[559] The definitions of "widespread, long-lasting or severe" as used by the States Parties reflect the definitions of these terms for the purposes of the ENMOD Convention (see Rule 3.B of the present Guidelines).

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[546] For an examination of the effect of the use of herbicides on coca crops in the context of armed conflict in Colombia, see ILPI, *Protection of the Natural Environment in Armed Conflict: An Empirical Study*, pp. 43–46.

[547] This purpose of attack is contemplated in the context of herbicides containing biological agents in UN, *Report of the Secretary-General on Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, pp. 46–47.

[548] For the rule of proportionality as applied to the natural environment, see Rule 7 of the present Guidelines.

[549] Dinstein, "Protection of the environment in international armed conflict", p. 538.

[550] These effects are contemplated in e.g. Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 4.11. More generally, see A.H. Westing, "Herbicides in war: Past and present", in A.H. Westing (ed.), *Herbicides in War: The Long-Term Ecological and Human Consequences*, Stockholm International Peace Research Institute, 1984, p. 3.

[551] Regarding long-term impacts of the use of the herbicide Agent Orange during the Vietnam War, see e.g. K.R. Olson and L.W. Morton, "Long-Term Fate of Agent Orange and Dioxin TCDD Contaminated Soils and Sediments in Vietnam Hotspots", *Open Journal of Soil Science*, Vol. 9, No. 1, 2019, pp. 1–34; L.T.N. Tuyet and A. Johansson, "Impact of chemical warfare with Agent Orange on women's reproductive lives in Vietnam: A pilot study", *Reproductive Health Matters*, Vol. 9, No. 18, November 2001, pp. 156–164; and J.M. Stellman and S.D. Stellman, "Agent Orange during the Vietnam War: The lingering issue of its civilian and military health impact", *American Journal of Public Health*, Vol. 108, No. 6, June 2018, pp. 726–728.

[552] WHO, *Health Aspects of the Use of Chemical and Biological Weapons*, p. 17.

[553] For the prohibition of widespread, long-term and severe damage to the natural environment, see Rule 2 of the present Guidelines.

[554] Regarding this historical link, see fn. 533 above.

[555] See, in particular, A.H. Westing, *Ecological Consequences of the Second Indochina War*, Stockholm International Peace Research Institute, Almqvist & Wikseel, Stockholm, 1976, pp. 24–45 and 63–82.

[556] *Ibid.*, p. 39.

[557] *Ibid.*, pp. 37 and 39–40.

[558] *Ibid.*, pp. 37–38 and 68–69.

[559] Second Review Conference of the Parties to the ENMOD Convention, Final Document, ENMOD/CONF.II/12, Geneva, 22 September 1992, Part II, pp. 11–12.

Rule 23 – Incendiary weapons

A. If incendiary weapons are used, particular care must be taken to avoid, and in any event to minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects, including the natural environment.

B. For States party to Protocol III to the Convention on Certain Conventional Weapons, it is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons, except when these are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

Commentary

252. The general rule embodied in Rule 23.A, which is stated here with the addition of an express reference to the natural environment, has been established as a rule of customary international law applicable in both international and non-international armed conflicts.[560] Rule 23.B is a restatement of Article 2(4) of the 1980 Protocol III to the CCW. It applies in international armed conflicts for all States party to the Protocol, and in non-international armed conflicts for those States Parties that have adhered to the 2001 Amended Article 1 of the CCW, which expanded the Convention's scope to situations of non-international armed conflict. In the latter case, it also applies to non-state armed groups that are party to a non-international armed conflict.

Rule 23.A

253. Rule 23.A is an application of the general rules of distinction and precautions to the specific case of incendiary weapons and the natural environment.[561] Incendiary weapons have unique and potent effects specifically owing to the impact of fire. When incendiary weapons are used, particular care must be taken to minimize their indiscriminate effects, including on the natural environment. As in Rule 11.A on the obligation to take particular care when carrying out attacks on works and installations containing dangerous forces, particular care requires conducting an assessment of what precautions are feasible that is sensitive to the unique risks entailed by the use of incendiary weapons, and accordingly taking rigorous precautionary measures.[562] This could involve, for example, requiring that a higher/elevated level of command take the decision to launch such an attack and/or ensuring that appropriate specialist advice is sought (for example, from fire-fighters or environmental specialists) when considering the risk of the fire spreading out of control or the potential effects of the use of fire.

254. The UN secretary-general highlighted the effects of incendiary weapons on the natural environment in a 1972 report, which stressed that such use "may lead to irreversible ecological changes having grave long-term consequences".[563] Consequences in this respect can include damage to trees or other plants (both from the initial fire and later damage from the fungi and insects that may enter through fire wounds), a reduction in protective soil litter increasing risk of soil erosion, and the direct and indirect effects on wildlife populations.[564]

255. Factors to consider when considering the use of an incendiary weapon include the incendiary substance of the munition and its foreseeable effects; the composition of the natural environment surrounding the military objective to be targeted; the potential difficulty of controlling incidental fires that may occur; the extent to which the natural environment can be protected; the climate and prevailing weather conditions; and the incidental toxic effects of carbon monoxide and other combustion products.[565] Notably, fire is more likely to spread at higher wind velocities, in conditions of lower humidity and where vegetation has not been dampened by recent rainfall.[566]

256. An example of an appropriate precaution would be to suspend or cancel an attack if weather conditions have rendered the spread of fire more likely and if such fire would render the attack disproportionate or indiscriminate.

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[560] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 84 and commentary, p. 287: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule84 and related practice.

[561] For further details regarding the rules of distinction and precautions as applied to the natural environment, see Rules 5 and 8 of the present Guidelines.

[562] The term "feasible" has been interpreted to mean practicable or practically possible, taking into account all circumstances ruling at the time, including humanitarian and military considerations. For a further discussion of feasible precautions, see Rule 8 of the present Guidelines.

[563] UN General Assembly, *Report of the Secretary-General on napalm and other incendiary weapons and all aspects of their possible use*, p. 51.

[564] Westing, *Ecological Consequences of the Second Indochina War*, pp. 58–60.

[565] For further details on the effects of incendiary weapons on the natural environment, see UN General Assembly, *Report of the Secretary-General on napalm and other incendiary weapons and all aspects of their possible use*, pp. 18, 43–44 and 50–51.

[566] *Ibid.*, pp. 21–22.

Another example is the selection of an alternative weapon that would achieve a similar military effect while minimizing the expected incidental civilian harm, including to the natural environment.

257. The general rules prohibiting indiscriminate and disproportionate attacks must also be respected when incendiary weapons are used. This requires that damage to the natural environment resulting from fire be taken into account in any assessment of the indiscriminate or disproportionate effects of incendiary weapons. This merits emphasis because, depending on the circumstances and how these weapons are used, fire can spread such that the user loses control of its effects in time and space, thereby raising issues of compatibility with the prohibition of indiscriminate attacks.[567]

Rule 23.B

258. Rule 23.B is a restatement of Article 2(4) of Protocol III to the CCW.

259. For the purposes of the Protocol, Article 1(1) defines an incendiary weapon as "any weapon or munition which is primarily designed to set fire to objects or to cause burn injury to persons through the action of flame, heat, or combination thereof, produced by a chemical reaction of a substance delivered on the target". It does not include weapons with incidental incendiary effects, such as illuminants, tracers or smoke or signalling munitions, or "combined-effects" munitions.[568]

260. Although this rule is specific to incendiary weapons, it should be noted that the general rule prohibiting attacks on any part of the natural environment, unless it is a military objective, is binding in both international and non-international armed conflicts as a matter of customary law.[569] Accordingly, to the extent that forests or other kinds of plant cover are not military objectives, they must not be the object of attack by incendiary weapons.

261. While the wording of Article 2(4) may be seen as leaving room for confusion as to whether plant cover could be attacked even if it is not a military objective, this paragraph should not be read in isolation. In particular, paragraph 1 of the same article establishes the general prohibition of attacking civilian objects with incendiary weapons.[570] Furthermore, the use of precise parts of a forest or other plants to cover, conceal or camouflage combatants or other military objectives is one of the manners in which plant cover may become a military objective itself. This interpretation is supported by the wording of the paragraph – "are used to" – which echoes the definition of a military objective; the use of objects, in this case parts of the natural environment, is indeed one of the manners in which they may make an effective contribution to military action. Finally, the drafting history of Article 2(4) indicates that no contradiction was intended between this provision and the definition of civilian objects and military objectives in Article 52(1)–(2) of the 1977 Additional Protocol I.[571]

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[567] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 623, para. 1963. For further details regarding the prohibition of indiscriminate attacks, including its relevance to the use of fire, see Rule 6 of the present Guidelines. Notably in the context of the 1980 CCW, some States have condemned the indiscriminate use of incendiary weapons. See e.g. Croatia, Statement at the Meeting of the High Contracting Parties to the CCW, 21–23 November 2018, and Statement at the Fifth Review Conference of the CCW, 12 December 2016; Ireland, Statement at the Meeting of High Contracting Parties to the CCW, November 2017; and Moldova, Statement at the Fifth Review Conference of the CCW, 12 December 2016.

[568] Combined-effects munitions are munitions designed to combine penetration, blast or fragmentation effects with an additional incendiary effect, such as armour-piercing projectiles.

[569] Indeed, this is the general rule of distinction as applied to the natural environment. For further details regarding this rule, see Rule 5 of the present Guidelines. Regarding whether the effects of incendiary weapons can be limited as required by IHL, see also Rule 6 of the present Guidelines on the prohibition of indiscriminate attacks; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 71 and commentary, pp. 244–250: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule71 and related practice.

[570] For practice regarding the environment as civilian in character and related diverging views, see paras 18–21 of the present Guidelines.

[571] On this point, see W.H. Parks, "Le protocole sur les armes incendiaires", *Revue internationale de la Croix-Rouge*, Vol. 72, No. 786, November–December 1990, pp. 602–603:

> Cette disposition nouvelle a été introduite tardivement au cours de la dernière session. Elle visait à interdire l'emploi des armes incendiaires pour mener un politique de la "terre brûlé". La règle a toutefois était [*sic*] remaniée par un petit groupe informel constitué par le président du Groupe de travail afin de la rendre conforme aux principes du droit de la guerre déjà en vigueur. Comme mentionné plus haut, cette règle est en accord avec les articles 52, paragraphes 1) et 2) et 55 du Protocole additionnel I.

Rule 24 – Landmines

A. For parties to a conflict, the minimum customary rules specific to landmines are:
   i. When landmines are used, particular care must be taken to minimize their indiscriminate effects, including those on the natural environment.
   ii. A party to the conflict using landmines must record their placement, as far as possible.
   iii. At the end of active hostilities, a party to the conflict which has used landmines must remove or otherwise render them harmless to civilians, or facilitate their removal.

B. For a State party to the Anti-Personnel Mine Ban Convention:
   i. The use of anti-personnel mines is prohibited.[572]
   ii. Each State Party must destroy or ensure the destruction of its anti-personnel mine stockpiles.
   iii. As soon as possible, each State Party must clear areas under its jurisdiction or control that are contaminated with anti-personnel mines.

C. For a State not party to the Anti-Personnel Mine Ban Convention, but party to Protocol II to the Convention on Certain Conventional Weapons as amended on 3 May 1996 (Amended Protocol II to the CCW), the use of anti-personnel and anti-vehicle mines is restricted by the general and specific rules under the Protocol, including those requiring that:
   i. All information on the placement of mines, on the laying of minefields and on mined areas must be recorded, retained and made available after the cessation of active hostilities, notably for clearance purposes.
   ii. Without delay after the cessation of active hostilities, all mined areas and minefields must be cleared, removed, destroyed or maintained in accordance with the requirements of Amended Protocol II to the CCW.

Commentary

262. Rule 24.A consists of the minimum customary law rules that apply specifically to landmines. It is relevant for the small number of States that are not party to the 1997 Anti-Personnel Mine Ban Convention or to the 1996 Amended Protocol II to the CCW. Rule 24.A.i and iii apply in all armed conflicts, whether international or non-international. Rule 24.A.ii applies in international, and arguably also in non-international, armed conflicts.

263. Rule 24.B is based on Articles 1(1), 4 and 5(1) of the Anti-Personnel Mine Ban Convention. The Convention is applicable in all situations, including in both international and non-international armed conflicts.[573]

264. Rule 24.C reflects the obligations of Amended Protocol II to the CCW, which sets out rules for mines, booby traps and other devices. In particular, the sub-rules of Rule 24.C are based on Articles 9(1) and 10(1) and (2) of the Protocol. Amended Protocol II is applicable in both international and non-international armed conflicts.[574] When a State is party to both Amended Protocol II and the Anti-Personnel Mine Ban Convention, the latter rules prevail with regard to anti-personnel mines.

265. These sets of rules are relevant because of the severe effects that landmines can have on civilians and the natural environment. The impact that such weapons can have on the natural environment has long attracted international

[572] Under the Convention, it is also prohibited to produce, stockpile and transfer anti-personnel mines as well as to develop, otherwise acquire and retain anti-personnel mines or to assist, encourage or induce, in any way, anyone to engage in prohibited acts.
[573] Under Article 1(1) of the Convention, States Parties undertake "never, under any circumstances" to use anti-personnel mines. This is understood to include all situations of armed conflict, other situations of internal strife or tensions and in times of peace.
[574] See Amended Protocol II to the CCW (1996), Art. 1(2).

concern.[575] Consequences may include the death of wildlife and long-term contamination of agricultural land.[576] These impacts can force local populations to avoid or abandon certain areas, causing them to exploit other parts of the natural environment unsustainably.[577] Thus, regardless of whether they are party to either Amended Protocol II or the Anti-Personnel Mine Ban Convention, the implementation of all or parts of these rules are measures any party to a conflict can take to minimize incidental damage to the natural environment that may result from the use of landmines.

266. Operations to clear or destroy landmines can also have adverse environmental impacts.[578] These include short-term effects, such as the removal of vegetation, and long-term effects, such as the contamination of soil and water systems when the weapons are destroyed in place.[579] Operations may also impact the natural habitats of insects and wildlife.[580]

267. The purpose of Rules 24.A–C is to minimize the environmental impact of landmines and facilitate their rapid removal after the end of active hostilities, actions that would clearly benefit the natural environment and the productive use of its resources.

268. This rule does not address naval mines. Naval mines are governed by treaty law and customary law, including general IHL rules on the conduct of hostilities.[581] Relevant treaty law includes the 1907 Hague Convention (VIII) on Submarine Mines. Furthermore, the 1994 *San Remo Manual on International Law Applicable to Armed Conflicts at Sea* restates rules specifically applicable to naval mines.[582]

Rule 24.A

269. Any use of landmines is governed by the general customary rules of distinction, proportionality and precautions.[583] Flowing from these, Rules 24.A.i–iii are minimum rules of customary international law applying specifically to landmines.[584] As stated above, Rules 24.A.i and iii apply in international and non-international armed conflicts;[585] Rule 24.A.ii applies in international, and arguably also in non-international, armed conflicts.[586]

[575] For an overview of the history of the consideration of this issue at the UN dating back to 1975, see UN General Assembly, *Problems of remnants of war: Report of the Secretary-General*, UN Doc. A/38/383, 19 October 1983, paras 3–8. See also UN General Assembly, *Report of the Secretary-General on the protection of the environment in times of armed conflict*, 1993, para. 107, which quotes a report submitted by the ICRC to the 48th session of the UN General Assembly, as follows: "[The ICRC] feels that careful attention should be paid to the problem of environmental damage caused by the indiscriminate and unrecorded laying of mines."

[576] Regarding the severe and persistent effects landmines can have on the natural environment, see e.g. UN General Assembly, *Report of the Secretary-General on problems of remnants of war*, in particular Annex I, paras 16–22; and A.A. Berhe, "The contribution of landmines to land degradation", *Land Degradation & Development*, Vol. 18, No. 1, January/February 2007, pp. 1–15.

[577] For further details regarding the effects of landmines and explosive remnants of war on the natural environment, see e.g. A.H. Westing (ed.), *Explosive Remnants of War: Mitigating the Environmental Effects*, Taylor and Francis, London, 1985; UN General Assembly, *Report of the Secretary-General on problems of remnants of war*, in particular Annex I, paras 16–22; and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 410–411, para. 1443.

[578] Geneva International Centre for Humanitarian Demining (GICHD), *"Do no harm" and mine action: Protecting the environment while removing the remnants of conflict*, GICHD, Geneva, 2014.

[579] U. Hoffman and P. Rapillard "Do no harm in mine action: Why the environment matters", *The Journal of ERW and Mine Action*, Vol. 19, No. 1, May 2015, p. 5.

[580] For an example of mitigation measures taken to protect wildlife during mine clearance, see M. Jebens, "Protecting the environment: Mine clearance in Skallingen, Denmark", *The Journal of ERW and Mine Action*, Vol. 19, No. 1, 2015, pp. 37–42.

[581] For an overview of legal considerations related to naval mines, see D. Letts, "Naval mines: Legal considerations in armed conflict and peacetime", *International Review of the Red Cross*, 2016, Vol. 98, No. 2, 2016, pp. 543–565; and Chatham House, *International Law Applicable to Naval Mines*, International Security Department Workshop Summary, London, October 2014.

[582] Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, pp. 25–26, paras 80–92. The Manual's provision regarding due regard for the natural environment also applies to naval mines: *ibid.*, p. 15, para. 44.

[583] See Rules 5, 6 and 7 of the present Guidelines. See also Amended Protocol II to the CCW (1996), Art. 3.

[584] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 81, p. 280: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule81 and related practice; *ibid.*, Rule 82, p. 283: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule82 and related practice; and *ibid.*, Rule 83, p. 285, https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule83 and related practice.

[585] See *ibid.*, Rule 81 and commentary, p. 280: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule81 and related practice; and *ibid.*, Rule 83 and commentary, p. 285: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule83 and related practice.

[586] See *ibid.*, Rule 82 and commentary, p. 283: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule82 and related practice.

270. The requirement of Rule 24.A.i that particular care be taken to minimize the indiscriminate effects of landmines flows from the civilian character of the natural environment.[587] Damage to the natural environment that may result from the use of landmines must therefore be taken into account in any assessment of their indiscriminate or disproportionate effects. To fulfil this obligation, parties to a conflict must take measures to reduce the risk of these effects; this will necessarily require that they comply with their obligations under the general rules on the conduct of hostilities.[588]

271. The requirement of Rule 24.A.ii that a party to a conflict using landmines must record their placement, as far as possible, provides protection to the natural environment on the basis that such records will ultimately facilitate the rapid clearance of the mines, particularly in post-conflict settings, and thus reduce the risk to the natural environment posed by these devices.

272. The requirement of Rule 24.A.iii that, at the end of active hostilities, a party to the conflict that has used landmines must remove or otherwise render them harmless to civilians, or facilitate their removal, logically reduces the risk of damage that such weapons pose to the natural environment, although, as noted above, certain demining activities can themselves harm the natural environment if not conducted with care.[589]

Rule 24.B

273. This rule outlines the requirements of the Anti-Personnel Mine Ban Convention of relevance to the protection of the natural environment. Under the Convention, an anti-personnel mine is defined as a munition designed to be placed on, under or near the ground or other surface area and to be exploded by the presence, proximity or contact of a person.[590] This includes mines that are mass produced to industrial standards, as well as those of an improvised nature.[591]

274. In addition to prohibiting the use of anti-personnel mines (Rule 24.B.i of the present Guidelines), the Anti-Personnel Mine Ban Convention requires each State Party to destroy all stockpiled anti-personnel mines (Rule 24.B.ii of the present Guidelines). Like other types of munitions, anti-personnel mines may contain hazardous materials and toxic chemicals which, if improperly destroyed, may be released and pollute groundwater drinking supplies and adversely affect flora and fauna. The International Mine Action Standards aim to help reduce these risks. They contain recommended standards for the destruction of stockpiled anti-personnel mines and general guidance on the management of explosive ordnance stockpile destruction by national authorities and destruction organizations.[592] Other international instruments, such as the 1972 Convention on the Prohibition of Marine Pollution by Dumping of Wastes and Other Matter and its 1996 Protocol, are also relevant and may apply if the State is party to them. These prohibit, among other things, the dumping and incineration of a range of materials at sea, including munitions. Other international agreements regulating the burning and international movement of hazardous waste and the transport of dangerous goods may also apply.[593] Each State party to the Anti-Personnel Mine Ban Convention will have to assess which instruments are applicable on a case-by-case basis.

275. Rule 24.B.iii reflects the Anti-Personnel Mine Ban Convention's requirements on the clearing of land contaminated with anti-personnel mines. As history has shown, in virtually all conflicts in which they have been used, anti-personnel mines remain long after the conflict is over. Their widespread use in past conflicts has resulted in some countries facing large-scale landmine contamination and enormous challenges to clear these weapons. Mine clearance remains a painstakingly slow process, for some countries lasting decades. Until mines are cleared, they remain a threat to civilians and the environment, and mined areas remain off-limits to agricultural and other vital activity, with negative socio-economic impacts on affected communities.

[587] On the civilian character of the natural environment, see the "Preliminary considerations" section of the present Guidelines, paras 18–21. More generally on the application of the prohibition of indiscriminate attacks to the natural environment, see Rule 6 of the present Guidelines.

[588] See, in particular, the principles of distinction, proportionality and precautions as applied to the natural environment in Rules 5, 7 and 8 of the present Guidelines.

[589] For further details, see para. 266 of the present Guidelines.

[590] Anti-Personnel Mine Ban Convention (1997), Arts 2(1) and 2(2).

[591] Fourth Review Conference of the States Parties to the Anti-Personnel Mine Ban Convention, Oslo, 26–29 November 2019, Final document, UN Doc. APLC/CONF/2019/5, 22 January 2020, pp. 7 and 31; ICRC, *Views and recommendations on improvised explosive devices falling within the scope of the Anti-Personnel Mine Ban Convention*, Working paper submitted by the ICRC to the Fourth Review Conference of the States Parties to the Anti-Personnel Mine Ban Convention, Oslo, 25–29 November 2019, p. 2.

[592] UN Mine Action Service (UNMAS), *National Planning Guidelines for Stockpile Destruction*, IMAS 11.30, 2nd ed., UNMAS, New York, 1 January 2003.

[593] See Convention on the Control of Transboundary Movement of Hazardous Waste and Their Disposal (1989); and European Agreement concerning the International Carriage of Dangerous Goods by Road (1957).

276. Each State party to the Anti-Personnel Mine Ban Convention must clear its contaminated territory as soon as possible but no later than ten years after it becomes a Party to the treaty. A State can ask for an extension of this deadline, but in applying for this it must include, among other things, an assessment of the humanitarian, social, economic and environmental implications of such an extension.

277. The national authorities overseeing clearance activities have a responsibility to ensure that operations to clear or destroy landmines are carried out in a safe, effective and efficient manner, and in a way that minimizes any reasonably expected impact on the natural environment. The International Mine Action Standards provide guidance on reducing the environmental impact of clearance operations and should be consulted and implemented as appropriate.[594]

Rule 24.C

278. Rule 24.C outlines the key obligations with respect to landmines contained in Amended Protocol II to the CCW that have relevance for the protection of the natural environment. In international armed conflicts, this rule binds States party to the Amended Protocol. In non-international armed conflicts, it applies to all parties to the conflict, including non-state armed groups. Under Article 2(1) of the Amended Protocol, "mine" means "a munition placed under, on or near the ground or other surface area and designed to be exploded by the presence, proximity or contact of a person or vehicle".

279. The requirement of Rule 24.C.i that a party to a conflict record information on the placement of mines, on the laying of minefields and on mined areas provides protection to the natural environment on the basis that such records will ultimately facilitate the rapid clearance of mines, particularly in post-conflict settings, and thus reduce the risk to the natural environment posed by these mines.

280. In addition, Rule 24.C.ii requires that, at the end of active hostilities, parties to a conflict must remove landmines or otherwise render them harmless to civilians in the areas under their control.[595] Or they must facilitate the removal of landmines they laid if contaminated areas are under the control of another party to the conflict, in accordance with the requirements of Article 10(3) of Amended Protocol II. This logically reduces the risk of damage that such weapons pose to the natural environment, although, as noted above, certain demining activities can themselves harm the natural environment if not conducted with care.[596] As with the clearance of explosive remnants of war (see Rule 25 of the present Guidelines), national authorities should take into account International Mine Action Standards and other relevant instruments, as appropriate.

[594] UNMAS, *Safety & occupational health – Protection of the environment*, IMAS 10.70, UNMAS, New York, 1 September 2007.

[595] Amended Protocol II to the CCW (1996), Arts 10(1)–(2).

[596] For further details, see para. 266 of the present Guidelines.

Rule 25 – Minimizing the impact of explosive remnants of war, including unexploded cluster munitions

A. Each State party to Protocol V to the Convention on Certain Conventional Weapons and parties to an armed conflict must:
   i. to the maximum extent possible and as far as practicable, record and retain information on the use or abandonment of explosive ordnance;
   ii. when it has used or abandoned explosive ordnance which may have become explosive remnants of war, without delay after the cessation of active hostilities and as far as practicable, subject to its legitimate security interests, make available such information in accordance with Article 4(2) of the Protocol;
   iii. after the cessation of active hostilities and as soon as feasible, mark and clear, remove or destroy explosive remnants of war in affected territories under its control.

B. Each State party to the Convention on Cluster Munitions undertakes:
   i. never under any circumstances to use cluster munitions;[597]
   ii. to destroy all cluster munitions in its stockpiles and to ensure that destruction methods comply with applicable international standards for protecting public health and the environment;
   iii. as soon as possible, to clear and destroy, or ensure the clearance and destruction of, cluster munition remnants located in cluster munition contaminated areas under its jurisdiction or control.

Commentary

281. Rules 25.A.i and 25.A.ii are based on Article 4 of the 2003 Protocol V to the CCW on explosive remnants of war. Rule 25.A.iii is based on Article 3 of the Protocol. Protocol V is applicable in both international and non-international armed conflicts.[598]

282. Rule 25.B.i is based on Article 1(1)(a) of the 2008 Convention on Cluster Munitions. Rules 25.B.ii and 25.B.iii are based on Articles 3(2) and 4(1) of the Convention, respectively. The Convention is applicable in all situations, including in both international and non-international armed conflicts.[599]

283. These rules are relevant because of the severe effects that explosive remnants of war, including cluster munition remnants, can have on civilians and the natural environment. Among other effects, these weapons can contaminate soil and water supplies and force local populations to avoid or abandon certain areas, causing them to exploit other parts of the natural environment unsustainably.[600] Operations to clear or destroy these weapons can also have an adverse environmental impact.

284. Accordingly, regardless of whether they are party to either Protocol V to the CCW or to the Convention on Cluster Munitions, the implementation of all or parts of these rules are measures any party to a conflict can take to minimize incidental damage to the natural environment that may result from the conduct of military operations. The term

[597] It is also prohibited to develop, produce, otherwise acquire, stockpile, retain or transfer to anyone cluster munitions and to assist, encourage or induce anyone to engage in any prohibited activity.

[598] Protocol V to the CCW (2003), Art. 1(3). See also L. Maresca, "A new protocol on explosive remnants of war: The history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons", *International Review of the Red Cross*, Vol. 86, No. 856, p. 824, which explains: "Article 1(3) states that the Protocol will apply to the situations arising from the conflicts referred to in paragraphs 1 to 6 of Article 1 of the CCW as amended on 21 December 2001. This is a reference to the amendment adopted by the Second CCW Review Conference that extends the scope of application of CCW Protocols I-IV to non-international armed conflict."

[599] Under Article 1(1) of the 2008 Convention on Cluster Munitions, States Parties undertake "never, under any circumstances" to use cluster munitions. This is understood to include all situations of armed conflict.

[600] For further details regarding the effects of explosive remnants of war on the natural environment, see e.g. Westing (ed.), *Explosive Remnants of War: Mitigating the Environmental Effects*; UN General Assembly, *Report of the Secretary-General on problems of remnants of war*, in particular Annex I, paras 16–22; and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 410–411, para. 1443.

"parties to an armed conflict" includes non-state armed groups that are party to an armed conflict occurring in the territory of a High Contracting Party to Protocol V to the CCW.

Rule 25.A

285. The purposes of Rule 25.A are to minimize the impact of explosive remnants of war and to facilitate their rapid removal after the end of active hostilities, actions that would clearly benefit the natural environment and the productive use of its resources.

286. To help achieve this, each State party to Protocol V to the CCW and parties to an armed conflict are required to record information on the explosive ordnance that they use or abandon. "Explosive ordnance" is understood to mean "conventional munitions containing explosives".[601] "Explosive remnants of war" comprise unexploded ordnance and explosive ordnance that has been abandoned.[602]

287. The information that a State party to Protocol V to the CCW and parties to an armed conflict should record and retain in implementing Rule 25.A includes:[603]

- the location of areas targeted using explosive ordnance;
- the approximate number, type and nature of explosive ordnance used;
- the general location of any known or probable unexploded ordnance;
- the location where explosive ordnance has been abandoned;
- the approximate amount and type of abandoned explosive ordnance at each specific site.

288. As foreseen in Rule.25.A.ii, this information must be released as quickly as possible following the end of active hostilities, to facilitate rapid risk awareness and the marking and clearance of explosive remnants to protect civilians. The information can be given directly to the party or parties in control of the area where the unexploded or abandoned ordnance is likely to be found, or indirectly through a mutually agreed third party, such as the UN.

289. The information will also be beneficial to organizations working to minimize the impact of unexploded or abandoned ordnance on civilian populations through risk education or the disposal and clearance of explosive ordnance. In this respect, a State Party and parties to an armed conflict must also release information upon request to such organizations when it is satisfied that the organizations are or will be conducting such risk education and clearance operations in the affected areas.

290. Rule 25.A.iii (as well as Rule 25.B.iii) requires the clearance of explosive remnants of war, including cluster munition remnants, following the end of active hostilities.

291. The national authorities overseeing clearance activities have a responsibility to ensure that they are carried out in a safe, effective and efficient manner, and in a way that minimizes any impact on the natural environment.[604] The International Mine Action Standards provide guidance on reducing the environmental impact of clearance operations and should be consulted and implemented as appropriate.[605] In addition to the effects that the presence of explosive remnants of war can have on the natural environment, operations to clear or destroy them can also have an impact. These include short-term effects such as the removal of vegetation, and long-term effects such as the contamination of soil and water systems when the weapons are destroyed in place.[606] Operations may also impact the natural habitats of insects and wildlife.

292. Although the rules of Protocol V regarding clearance obligations apply only to conflicts that occur after the Protocol's entry into force, States already affected by explosive remnants of war when they become a Party to the Protocol are

[601] As found in Protocol V to the CCW (2003), Art. 2(1). This provision further states that, for the purposes of the Protocol, mines, booby traps and certain other devices are excluded from this definition, as these are governed separately by the 1996 Amended Protocol II to the CCW. See Rule 24 of the present Guidelines regarding landmines.

[602] Under Article 2(2) of the 2003 Protocol V to the CCW, "[u]nexploded ordnance means explosive ordnance that has been primed, fused, armed, or otherwise prepared for use and used in an armed conflict. It may have been fired, dropped, launched or projected and should have exploded but failed to do so". Under Article 2(3) of the Protocol, "[a]bandoned explosive ordnance means explosive ordnance that has not been used during an armed conflict, that has been left behind or dumped by a party to an armed conflict, and which is no longer under control of the party that left it behind or dumped it. Abandoned explosive ordnance may or may not have been primed, fused, armed or otherwise prepared for use."

[603] This list derives from Section 1 of the Technical Annex of the 2003 Protocol V to the CCW, which contains suggested, non-obligatory best practices for achieving the objectives of its relevant provisions.

[604] In accordance with the provisions of Protocol V to the CCW (2003), Art. 3.

[605] UNMAS, *Safety & occupational health – Protection of the environment*.

[606] For further details, see Rule 24 of the present Guidelines regarding landmines, para. 266.

accorded "the right to seek and receive assistance" from other States Parties.[607] In parallel, States Parties in a position to do so are obliged to provide assistance, as necessary and feasible, to help affected States Parties reduce the threats posed by explosive remnants of war.[608]

Rule 25.B

293. Rule 25.B.i outlines the requirements of the Convention on Cluster Munitions of relevance to the protection of the natural environment. Under the Convention, a cluster munition is defined as "a conventional munition that is designed to disperse or release explosive submunitions, each weighing less than 20 kilograms".[609]

294. In addition to prohibiting the use of cluster munitions (the present Rule 25.B.i), the Convention requires each State Party to destroy all cluster munitions that it has in its stockpiles (the present Rule 25.B.ii). Importantly, in complying with these requirements, the State Party must ensure that international standards for the protection of public health and the environment are met.[610] Like other types of munitions, cluster munitions contain hazardous materials and toxic chemicals which, if destroyed improperly, may be released and pollute groundwater drinking supplies and affect flora and fauna.

295. There are no internationally recognized standards that specifically address the destruction of cluster munition stockpiles. However, the International Mine Action Standards contain recommended standards for the destruction of stockpiled anti-personnel landmines and general guidance on the management of explosive ordnance stockpile destruction by national authorities and destruction organizations.[611] Other international instruments, such as the 1972 Convention on the Prohibition of Marine Pollution by Dumping of Wastes and Other Matter and its 1996 Protocol, are also relevant and may apply if the State is party to them. These prohibit, among other things, the dumping and incineration of a range of materials at sea, including munitions. Other international agreements regulating the burning and international movement of hazardous waste and the transport of dangerous goods may also apply.[612] Each State Party to the Convention on Cluster Munitions will have to assess which instruments are relevant on a case-by-case basis.

296. Rule 25.B.iii reflects the Convention's requirements on the clearing of land contaminated with cluster munitions remnants.[613] It is included because history has shown that large numbers of submunitions often fail to explode as intended and remain as a severe post-conflict hazard, including to the natural environment. The large-scale use of these weapons in past conflicts has resulted in some countries becoming infested with millions of unexploded and highly unstable submunitions.[614]

297. Each State party to the Convention undertakes to clear its contaminated territory as soon as possible but not later than ten years after the date of entry into force of the treaty for that State Party.[615] A State can ask for an extension, but in applying for this, it must include, among other things, an assessment of the humanitarian, social, economic and environmental implications of the extension.[616]

298. As mentioned above in relation to Rule 25.A, clearance operations can impact on the natural environment. Authorities of States Parties must take into account international standards in this respect, including the International Mine Action Standards.[617]

299. In cases in which cluster munitions have been used or abandoned by one State Party prior to entry into force of this Convention for that State Party and have become cluster munition remnants that are located in areas under the jurisdiction or control of another State Party at the time of entry into force of this Convention for the latter, the former State Party is strongly encouraged to provide assistance to the latter State Party.[618] This assistance can take

[607] Protocol V to the CCW (2003), Art. 7(1).
[608] *Ibid.*, Art. 7(2).
[609] A number of munitions are not considered cluster munitions for the purposes of the Convention: Convention on Cluster Munitions (2008), Article 2(2)(a)–(c). The provision also sets out definitions for "explosive submunitions" and other terms used in the Convention.
[610] Convention on Cluster Munitions (2008), Art. 3(2).
[611] UNMAS, *National Planning Guidelines for Stockpile Destruction*.
[612] Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal (1989); European Agreement concerning the International Carriage of Dangerous Goods by Road (1957).
[613] Convention on Cluster Munitions (2008), Art. 4.
[614] ICRC, *Cluster munitions: What are they and what is the problem?*, Factsheet, Geneva, 2010, p. 1: https://www.icrc.org/eng/resources/documents/legal-fact-sheet/cluster-munitions-factsheet-230710.htm.
[615] Convention on Cluster Munitions (2008), Art. 4(1)(a). See also *ibid.*, Art. 4(1)(b).
[616] *Ibid.*, Art. 4(5) and (6)(h).
[617] *Ibid.*, Art. 4(5) and (3)
[618] *Ibid.*, Art. 4(4).

various forms and be technical, financial, material or human resource in nature. It can be provided directly to the State affected by the explosive remnants of war or through an agreed third party, such as the UN or other organization.

PART IV: RESPECT FOR, IMPLEMENTATION AND DISSEMINATION OF INTERNATIONAL HUMANITARIAN LAW RULES PROTECTING THE NATURAL ENVIRONMENT

Rule 26 – Obligation to respect and ensure respect for international humanitarian law, including the rules protecting the natural environment

A. Each party to the conflict must respect and ensure respect for international humanitarian law, including the rules protecting the natural environment, by its armed forces and other persons or groups acting in fact on its instructions or under its direction or control.

B. States may not encourage violations of international humanitarian law, including of the rules protecting the natural environment, by parties to an armed conflict. They must exert their influence, to the degree possible, to stop violations of international humanitarian law.

Commentary

300. These general rules, which are stated here with the addition of an express reference to the natural environment, have been established as norms of customary international law applicable in both international and non-international armed conflicts.[619] According to the ICRC Study on Customary International Humanitarian Law, the obligation to respect and ensure respect is not limited to the 1949 Geneva Conventions and their 1977 Additional Protocols but rather applies to the entire body of IHL binding on a particular State.[620] The obligation to respect and ensure respect is also set forth in common Article 1 of the Geneva Conventions, as well as in Article 1(1) of Additional Protocol I, whereby States ("High Contracting Parties") undertake to respect and to ensure respect, respectively, for "the present Convention" and for "this Protocol" in all circumstances. As indicated, this treaty obligation has crystallized into a customary norm.

301. Although the relevant treaty provisions are addressed to "High Contracting Parties" and therefore not to non-state armed groups that are party to a non-international armed conflict, it follows from common Article 3 (which is binding on all parties to a conflict), that non-state armed groups are obliged to "respect" the guarantees it contains. Such groups must also "ensure respect" for common Article 3 by their members and by individuals or groups acting on their behalf, on the basis of the requirement for armed groups to be organized and to have a responsible command which must ensure respect for IHL.[621]

302. The obligation of States under common Article 1 to respect and ensure respect for IHL includes common Article 3 in non-international armed conflicts.[622] Thus, all parties to a conflict, whether international or non-international in character, must respect and ensure respect for the applicable rules of IHL, including those that protect the natural environment. States that are not party to an armed conflict also have to respect and ensure respect for these obligations.

Obligation to respect and ensure respect

303. Parties to a conflict must respect the applicable rules of IHL, and indeed, acts or omissions which amount to violations of IHL will entail the international responsibility of a State, provided those acts or omissions are

[619] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 139 and commentary, p. 495: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule139 and related practice; and *ibid.*, Rule 144 and commentary, p. 509: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144 and related practice.

[620] *Ibid.*, commentary on Rule 139, p. 495: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule139; and *ibid.*, commentary on Rule 144, p. 511: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144. See also ICRC, *Commentary on the First Geneva Convention*, 2016, para. 126.

[621] ICRC, *Commentary on the First Geneva Convention*, 2016, paras 131–132.

[622] *Ibid.*, para. 125.

attributable to the State according to the rules on State responsibility.[623] Parties must also "ensure respect" for the rules. This requires that they take appropriate measures to prevent IHL violations from happening in the first place. Accordingly, States must take all measures necessary to ensure respect for the applicable rules of IHL, beginning in peacetime.[624] Parties to an armed conflict may take various measures to ensure respect for IHL rules, including those protecting the natural environment, by, among other things, integrating these rules into legislative, administrative and institutional measures (for example, incorporating them into military manuals and codes of conduct)[625] and encouraging the teaching of the civilian population in how the natural environment is protected by IHL in times of armed conflict.[626]

304. Separately, it is worth noting that the obligation to respect and ensure respect for IHL binds all States, whether they are party to a conflict or not.[627] The duty to ensure respect by others comprises both a negative and a positive obligation: under the negative obligation, States may neither encourage nor aid or assist in violations of IHL by parties to a conflict, and under the positive obligation, they must do everything reasonably in their power to prevent and bring such violations to an end.[628] It bears noting that there are diverging views on this point. One view advocates that States have only undertaken to ensure respect by their organs and private individuals within their own jurisdictions, and some have expressed disagreement as to the legal nature of the positive component of the duty to ensure respect by others.[629] The prevailing view today and that supported by the ICRC is that the obligation to ensure respect is not limited to behaviour by parties to a conflict but includes the requirement that States do all in their power to ensure that IHL is respected universally, including by other States and non-state actors that are party to an armed conflict.[630] This view was expressed in the ICRC's 1952 Commentary on the First Geneva Convention, and developments in customary international law have since confirmed this view.[631]

305. Appropriate measures that may be taken include sharing scientific expertise as to the nature of the damage caused to the natural environment by certain types of weapons so as to inform assessments of proportionality and making available technical advice as to how passive precautionary measures can be put in place to protect areas of particular ecological importance or fragility.

The applicable rules of IHL, including those protecting the natural environment

306. The applicable rules of IHL protecting the natural environment, whether they are treaty based or customary, may differ depending on whether a conflict is international or non-international.[632] Parties to a conflict are obliged to respect and ensure respect only for those rules that apply to them. In addition, and as a matter of policy, the ICRC

[623] *Ibid.*, para. 144. Regarding responsibility for violations of IHL, see also Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 149, p. 530: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule149 and related practice.

[624] ICRC, *Commentary on the First Geneva Convention*, 2016, paras 145–149.

[625] See Rule 29 of the present Guidelines.

[626] See Rule 30 of the present Guidelines.

[627] K. Dörmann and J. Serralvo, "Common Article 1 to the Geneva Conventions and the obligation to prevent international humanitarian law violations", *International Review of the Red Cross*, Vol. 96, No. 895, 2014, pp. 716–722. See also ICRC, *Commentary on the First Geneva Convention*, 2016, para. 153; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 144, p. 509: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144.

[628] For greater detail on the content of these positive and negative obligations, see Dörmann/Serralvo, "Common Article 1 to the Geneva Conventions and the obligation to prevent international humanitarian law violations", pp. 726–732. See also ICRC, *Commentary on the First Geneva Convention*, 2016, paras 154–173; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 144, pp. 510–512: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144.

[629] ICRC, *Commentary on the First Geneva Convention*, 2016, paras 120–121 and 155; and ICRC, *Commentary on the Second Geneva Convention: Convention (II) for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea*, ICRC, Geneva/Cambridge University Press, Cambridge, 2017, p. 62, para. 191 and references in fn. 93, in particular B. Egan, Legal Adviser, US Department of State, Remarks to the American Society of International Law, "International law, legal diplomacy, and the counter-ISIL campaign: Some observations", 1 April 2016. See also the view of V. Robson, Legal Counsellor, UK Foreign and Commonwealth Office: V. Robson "The common approach to Article 1: The scope of each State's obligation to ensure respect for the Geneva Conventions", *Journal of Conflict & Security Law*, Vol. 25, No. 1, 2020, pp. 101–115.

[630] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 144, pp. 509–510: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144. See also ICRC, *Commentary on the First Geneva Convention*, 2016, paras 120–121 and 155–156; ICRC, *Commentary on the Second Geneva Convention*, 2017, paras 192–195; and Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 36, para. 45.

[631] Pictet (ed.), *Commentary on the First Geneva Convention*, 1952, p. 26 (while the English version of the Commentary uses the expression "should endeavour", the French original, by the use of the verb "doivent" ("must"), is clear that this was seen as an obligation); ICJ, *Military and Paramilitary Activities in and against Nicaragua (Nicaragua* v. *United States)*, Judgment, 1986, para. 220; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Rule 144, p. 509: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule144 and related practice.

[632] As indicated throughout the commentary on the present Guidelines, it is unsettled whether certain rules apply as a matter of customary law in non-international armed conflicts.

encourages parties to non-international armed conflicts to apply other rules applicable to international armed conflicts that provide additional protection to the natural environment.[633]

[633] See Rule 18 of the present Guidelines.

Rule 27 – National implementation of international humanitarian law rules protecting the natural environment

States must act in accordance with their obligations to adopt domestic legislation and other measures at the national level to ensure that the international humanitarian law rules protecting the natural environment in armed conflict are put into practice.

Commentary

307. This rule, which promotes the implementation of international obligations in domestic law and practice, is in keeping with the obligation to respect and ensure respect for IHL,[634] as well as with States' obligation to take measures necessary to suppress all acts contrary to the 1949 Geneva Conventions and the 1977 Additional Protocol I.[635]

308. The term "implementation" covers all measures that need to be taken to ensure that the rules of IHL are fully respected.[636] It therefore covers a broad range of requirements,[637] including the enactment of legislation establishing relevant regulatory systems or imposing sanctions that can be applied by national courts, the training of the armed forces in IHL and the encouragement of its teaching among the civilian population.[638]

309. Importantly, many of these obligations are relevant in peacetime, including the requirements to adopt and implement legislation to institute penal sanctions for war crimes and to take measures to suppress other violations of IHL.[639] War crimes affecting the natural environment must therefore be criminalized in domestic law.[640] These obligations are best complied with during armed conflicts if preparatory steps are taken already in peacetime to implement them.[641] In relation to the protection of the natural environment, such steps could include introducing regulations to ensure that harm to the environment is eliminated or mitigated in the testing, use or destruction of military equipment[642] and establishing monitoring capabilities to assess the environmental impact.[643]

[634] Regarding the obligation to respect and ensure respect for IHL, see Rule 26 of the present Guidelines. Regarding the link between national implementation and the common Article 1 obligation to respect and ensure respect for the Geneva Conventions, see E. Mikos-Skuza, "Dissemination of the Conventions, including in time of armed conflict", in A. Clapham, P. Gaeta and M. Sassòli (eds), *The 1949 Geneva Conventions: A Commentary*, Oxford University Press, Oxford, 2015, p. 598.

[635] First Geneva Convention (1949), Art. 49(3); Second Geneva Convention (1949), Art. 50(3); Third Geneva Convention (1949), Art. 129(3); Fourth Geneva Convention (1949), Art. 146(3); Additional Protocol I (1977), Arts 85(1) and 86(1). States may take a wide range of measures pursuant to this obligation, including those outlined herein. For further details, see ICRC, *Commentary on the First Geneva Convention*, 2016, paras 2896–2898.

[636] ICRC, Advisory Service on International Humanitarian Law, *Implementing International Humanitarian Law: From Law to Action*, Legal factsheet, ICRC, Geneva, 2002. Regarding ICRC efforts to support national implementation measures, see P. Berman, "The ICRC's Advisory Service on International Humanitarian Law: The challenge of national implementation", *International Review of the Red Cross*, Vol. 36, No. 312, May 1996, pp. 338–347.

[637] For a comprehensive overview of key articles in the 1949 Geneva Conventions and 1977 Additional Protocols requiring the adoption of IHL national implementation measures, see ICRC, Advisory Service on International Humanitarian Law, *Implementing International Humanitarian Law: From Law to Action*, p. 2.

[638] See Rules 28–30 of the present Guidelines.

[639] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 199.

[640] Regarding war crimes relevant to the protection of the natural environment, see Rule 28 of the present Guidelines. For an example of the domestic criminalization of war crimes affecting the environment, see e.g. Iraq, *Law No. 10 of the Iraqi Higher Criminal Court*, 2005, Art. (13)(2)(e).

[641] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 200.

[642] China's *Regulation of the Chinese People's Liberation Army on the Protection of the Environment*, 2004, contains such a provision. For this and other pertinent examples, see the review of the practice of States and international organizations in ILC, *Preliminary report by Special Rapporteur M.G. Jacobsson*, pp. 8–15, referring to the "NATO military principles and policies for environmental protection"; and ILC, *Second report by Special Rapporteur M.G. Jacobsson*, pp. 17–21. See, further, EU, *European Union Military Concept on Environmental Protection and Energy Efficiency for EU-led military operations*, pp. 15–17.

[643] For example, through the development of a system of environmental impact assessments (EIA) or the establishment of an environmental database to which all units in the armed forces report activities, products or services that may impact the environment. For these and other pertinent examples, see ILC, *Preliminary report by Special Rapporteur M.G. Jacobsson*, pp. 8–15. See also the statement of Malaysia relating to measures taken to protect and preserve the environment, including the need for EIA reports prior to the construction of military bases and installations and the proper placement of explosives and fuel-storage installations: Malaysia, Statement before the Sixth Committee of the UN General Assembly, 69th session, Agenda item 78, 5 November 2014, paras 12–13.

310. Many States party to the Geneva Conventions have set up national committees or similar entities (often referred to simply as "national IHL committees") to advise and assist authorities in their actions to implement IHL obligations, including those protecting the natural environment.[644]

311. States may also have national implementation obligations relevant to the protection of the natural environment in armed conflict flowing from other treaties to which they are party. For example, a State party to the 1976 ENMOD Convention "undertakes to take any measures it considers necessary in accordance with its constitutional processes to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control".[645] To this end, States party to that Convention should enact criminal legislation, including during peacetime, to outlaw and repress the use of prohibited techniques within its territory and anywhere else under its jurisdiction or control.[646]

[644] For an example of a national IHL committee, including within the scope of the ILC's work on the protection of the natural environment in relation to armed conflicts, see Slovenia, Statement before the Sixth Committee of the UN General Assembly, 74th session, Agenda item 79, 31 October 2019.

[645] ENMOD Convention (1976), Art. IV.

[646] ICRC, Advisory Service on International Humanitarian Law, *1976 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques*, Legal factsheet, ICRC, Geneva, 31 January 2003.

Rule 28 – Repression of war crimes that concern the natural environment

A. States must investigate war crimes, including those that concern the natural environment, allegedly committed by their nationals or armed forces, or on their territory, and, if appropriate, prosecute the suspects. They must also investigate other war crimes over which they have jurisdiction, including those that concern the natural environment, and, if appropriate, prosecute the suspects.

B. Commanders and other superiors are criminally responsible for war crimes, including those that concern the natural environment, committed by their subordinates if they knew, or had reason to know, that the subordinates were about to commit or were committing such crimes and did not take all necessary and reasonable measures in their power to prevent their commission, or if such crimes had been committed, to punish the persons responsible.

C. Individuals are criminally responsible for war crimes they commit, including those that concern the natural environment.

Commentary

312. The general rules embodied in Rules 28.A, 28.B and 28.C, which are stated here with the addition of express references to the natural environment, have been established as norms of customary international law applicable in both international and non-international armed conflicts.[647] War crimes referred to by these rules include those established by the grave breaches provisions in the 1949 Geneva Conventions and in the 1977 Additional Protocol I,[648] those contained in the 1998 ICC Statute as applicable,[649] and those found in customary international law.[650]

Criminal liability specifically concerning the natural environment

313. Of considerable historical significance, Article 8(2)(b)(iv) of the ICC Statute sets down for States Parties the war crime of "[i]ntentionally launching an attack in the knowledge that such attack will cause … widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated".[651] This provision is the first to establish individual liability for an international crime that harms the natural environment as such, without requiring that harm be caused to human beings for liability to be triggered.[652] This war crime under the ICC Statute applies in international, but not in non-international, armed conflicts.

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[647] Regarding Rule 28.A of the present Guidelines, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 158 and commentary, p. 607: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule158 and related practice. It is important to note that Rule 158 of the study, together with Rule 157, means that States must exercise the criminal jurisdiction which their domestic legislation confers upon their courts, be it limited to territorial and personal jurisdiction or including universal jurisdiction, which is obligatory for grave breaches. Regarding Rule 28.B of the present Guidelines, see *ibid.*, Rule 153 and commentary, p. 558: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule153 and related practice. Regarding Rule 28.C of the present Guidelines, see *ibid.*, Rule 151 and commentary, p. 551: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule151 and related practice.

[648] First Geneva Convention (1949), Art. 50; Second Geneva Convention (1949), Art. 51; Third Geneva Convention (1949), Art. 130; Fourth Geneva Convention (1949), Art. 147; Additional Protocol I (1977), Arts 11 and 85.

[649] For States Parties, war crimes are set out in Article 8 of the 1998 ICC Statute.

[650] For an illustrative list of war crimes, see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 156, pp. 574–604: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule156.

[651] The 1998 ICC Statute thus introduces a proportionality assessment in addition to the requirement that damage to the natural environment be "widespread, long-term and severe"; see Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 45, p. 153: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45. For differing views on this point, see Dörmann, *Elements of War Crimes under the Rome Statute of the International Criminal Court*, p. 167; and S. Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, Intersentia, Cambridge, June 2015, pp. 206–208.

[652] Although this war crime is the first to expressly protect the natural environment, some have observed that environmental issues nevertheless remain secondary to interests of military importance in this rule; see e.g. Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, p. 206. For further details regarding this war crime, see also K.J. Heller and J.C. Lawrence, "The first ecocentric environmental war crime: The limits of article 8(2)(b)(iv) of the Rome Statute", *Georgetown International Environmental Law Review*, Vol. 20, No. 1, 2007, pp. 61–96; and

Criminal liability generally relevant to the natural environment

314. Other war crimes not specific to the natural environment may nevertheless provide protection to certain parts of it. This protection could be provided directly, for instance by proscribing the pillaging of objects including natural resources. It could also provide protection indirectly, for instance by proscribing the kind of serious injury to health that could conceivably be brought about by the destruction of a particular natural environment through the use of, for example, nuclear weapons.

315. As an illustration in international armed conflict, other potentially relevant war crimes under the ICC Statute include Article 8(2)(a)(iv), which prohibits extensive destruction and appropriation of property not justified by military necessity and carried out wantonly and unlawfully; Article 8(2)(b)(ii), which prohibits intentionally directing attacks against civilian objects; Article 8(2)(b)(v), which prohibits attacking or bombarding, by whatever means, towns, villages, dwellings or buildings which are undefended and which are not military objectives; Article 8(2)(b)(xiii), which prohibits destroying or seizing the enemy's property unless such destruction or seizure be imperatively demanded by the necessities of war; Article 8(2)(b)(xvi), which prohibits pillaging a town or place, even when taken by assault; Article 8(2)(b)(xvii), which prohibits employing poison or poisoned weapons; and Article 8(2)(b)(xviii), which prohibits employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices.[653]

316. In non-international armed conflict, potentially relevant war crimes under the ICC Statute include Article 8(2)(e)(v), which prohibits pillaging a town or place, even when taken by assault; Article 8(2)(e)(xii), which prohibits destroying or seizing the property of an adversary unless such destruction or seizure be imperatively demanded by the necessities of the conflict; Article 8(2)(e)(xiii), which prohibits employing poison or poisoned weapons; and Article 8(2)(e)(xiv), which prohibits employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices.[654]

317. Of relevance for the prosecution of crimes affecting the natural environment, when assessing the gravity of crimes to determine case selection in the context of prosecution at the ICC, consideration may be had to whether the crimes were committed by means of, or resulted in, the destruction of the natural environment. Furthermore, the impact of the crimes may be measured by the environmental damage inflicted on the affected community, with special consideration to be given to the prosecution of crimes "that are committed by means of, or that result in, among others, the destruction of the environment, the illegal exploitation of natural resources or the illegal dispossession of land".[655]

318. There have been some instances of successful prosecutions for war crimes that, at least in part, concerned the natural environment, for example for the use of scorched earth practices[656] or for the unlawful exploitation of natural resources.[657] Generally, however, there has been little individual accountability for war crimes that concern the natural environment to date.[658]

M.A. Drumbl, *Accountability for Property Crimes and Environmental War Crimes: Prosecution, Litigation, and Development*, International Center for Transitional Justice, New York, 2009, pp. 7–8.

[653] For further details, see Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, pp. 213–214; and Drumbl, *Accountability for Property Crimes and Environmental War Crimes: Prosecution, Litigation, and Development*, p. 8.

[654] Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, p. 214.

[655] ICC, Office of the Prosecutor, *Policy paper on case selection and prioritisation*, ICC, 15 September 2016, p. 14, paras 40 and 41.

[656] German military officer Alfred Jodl was convicted by the Nuremberg Military Tribunals in part for the use of scorched-earth practices in Norway: *Trial of the Major War Criminals before the International Military Tribunal: Nuremberg, 14 November 1945–1 October 1946*, Vol. I, 1947, pp. 324–325.

[657] For a list of cases wherein pillage was prosecuted as a war crime and where the property concerned was part of the natural environment (including, for example, oil and ores), see Stewart, *Corporate War Crimes*, Annex 1, pp. 96–124. In addition, and although not a case of international criminal law, the ICJ dealt with the question of looting, plunder and exploitation of the Democratic Republic of the Congo's natural resources, including in the context of Article 43 of the 1907 Hague Regulations in *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo* v. *Uganda)*, Judgment, 19 December 2005, paras 242, 246 and 250.

[658] Regarding the challenges of prosecuting war crimes concerning the natural environment, see Drumbl, *Accountability for Property Crimes and Environmental War Crimes: Prosecution, Litigation, and Development*, pp. 7–11; and M.A. Drumbl, "Waging war against the world: The need to move from war crimes to environmental crimes", in Austin/Bruch (eds), *The Environmental Consequences of War*, pp. 620–646. Regarding the need to more effectively address the intentional destruction of the natural environment under international criminal law, as well as the potential that environmental damage could fall within the ambit of crimes against humanity or genocide, see Freeland, *Addressing the Intentional Destruction of the Environment during Warfare under the Rome Statute of the International Criminal Court*, pp. 219–226.

Rule 29 – Instruction in international humanitarian law within armed forces, including in the rules protecting the natural environment

States and parties to the conflict must provide instruction in international humanitarian law, including in the rules protecting the natural environment, to their armed forces.

Commentary

319. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable to States in times of peace, as well as to parties to international and non-international armed conflicts.[659] It reflects obligations to disseminate, within armed forces, the rules of IHL set down in instruments including the 1949 Geneva Conventions,[660] their 1977 Additional Protocols,[661] the 1954 Hague Convention for the Protection of Cultural Property and its 1999 Second Protocol,[662] and the 1980 CCW.[663] It is furthermore a corollary of the obligation to respect and ensure respect for IHL.[664]

Providing instruction

320. This rule does not prescribe how States and parties to an armed conflict must comply with their obligation to incorporate IHL, including its rules protecting the natural environment, into their programmes of instruction for their armed forces.[665] However, to induce behaviour compliant with the law, rules of IHL protecting the natural environment must not be taught simply as an abstract and separate set of legal norms[666] but rather must be integrated into the armed forces' regular activity, training and instruction such that they effectively influence their culture and its underlying values.[667]

321. Hence, although the law does not specify the exact measures that States must take to comply with this obligation, in practice States issue military manuals and other standard reference materials on the topic or, in some cases, integrate IHL into their field manuals (as well as into learning materials such as courses and videos).[668] Of express relevance to measures of instruction in IHL rules protecting the natural environment, in its 1992 resolution on protection of the environment in times of armed conflict, the UN General Assembly urged States to "take steps to incorporate the provisions of international law applicable to the protection of the environment into their military manuals and to ensure that they are effectively disseminated",[669] and indeed, many States have done so.[670]

322. In addition to incorporating legal provisions into reference manuals, States and parties to armed conflicts adapt the complexity and detail of learning materials to rank and responsibility and develop training courses to ensure that

[659] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Rule 142 and commentary, p. 501: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule142 and related practice.

[660] First Geneva Convention (1949), Art. 47; Second Geneva Convention (1949), Art. 48; Third Geneva Convention (1949), Art. 127; Fourth Geneva Convention (1949), Art. 144.

[661] Additional Protocol I (1977), Arts 83 and 87(2); Additional Protocol II (1977), Art. 19.

[662] Hague Convention for the Protection of Cultural Property (1954), Art. 25; Second Protocol to the Hague Convention for the Protection of Cultural Property (1999), Art. 30.

[663] CCW (1980), Art. 6.

[664] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 146. See also Rule 26 of the present Guidelines, and R. Geiss, "The obligation to respect and to ensure respect for the Conventions", in A. Clapham, P. Gaeta and M. Sassòli (eds), *The 1949 Geneva Conventions: A Commentary*, Oxford University Press, Oxford, 2015, p. 119.

[665] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 2774.

[666] On the gulf between knowledge, attitudes and behaviour, see ICRC, *The Roots of Behaviour in War: Understanding and Preventing IHL Violations*, ICRC, Geneva, 2004, p. 8. See also ICRC, *The Roots of Restraint in War*, ICRC, Geneva, 2018, p. 25.

[667] The behaviour of weapon bearers during operations is shaped by four main factors: (1) doctrine; (2) education; (3) training and equipment; and (4) sanctions. For operations to be conducted in compliance with the law, the law must therefore become an integral part of all four elements, and this is what the ICRC refers to as the "integration" process; see, generally, ICRC, *Integrating the Law*, ICRC, Geneva, 2007, pp. 17 and 23–35. See also ICRC, *Commentary on the First Geneva Convention*, 2016, para. 2776.

[668] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 2775. For an example of a State adopting such a practice, i.e. compiling in a booklet the official translations of the Geneva Conventions and the Additional Protocols to be used as a learning tool for the armed forces, see the statement of Slovenia in the context of the ILC's work on the protection of the environment in relation to armed conflicts: Slovenia, Statement before the Sixth Committee of the UN General Assembly, 74th session, Agenda item 79, 31 October 2019.

[669] UN General Assembly, Res. 47/37, Protection of the environment in times of armed conflict, 25 November 1992, para. 3.

[670] See e.g. Australia, *The Manual of the Law of Armed Conflict*, 2006, para. 5.50; Burundi, *Règlement No. 98 sur le droit international humanitaire*, 2007, Part 1 *bis*, p. 5; Chad, *Droit international humanitaire : Manuel de l'instructeur en vigueur dans les forces armées et de sécurité*, 2006, p. 16; Italy, *Manuale di diritto umanitario*, 1991, Vol. I, para. 85; Mexico, *Manual de Derecho Internacional Humanitario para el Ejército y la Fuerza Área Mexicanos*, 2009, para. 255; United Kingdom, *The Joint Service Manual of the Law of Armed Conflict*, 2004, para. 13.30; and United States, *The Commander's Handbook on the Law of Naval Operations*, 2007, para. 8.4.

compliance with IHL becomes a reflex rather than an esoteric subject of theoretical knowledge.[671] With regard to the protection of the natural environment generally, NATO, for example, designated staff officers to be responsible for implementing environmental protection standards at strategic, operational and tactical levels and established an Environmental Protection Working Group, which aims to "reduce possible harmful impacts of military activities on the environment by developing NATO policies, standardization documents, guidelines and best practices in the planning and implementation of operations and exercises".[672] The Chinese People's Liberation Army has regulations setting down environmental protection standards in the implementation of military training, planning and construction projects.[673] The use of new forms of training, including virtual reality tools, can also be a way for States or parties to armed conflict to provide instruction in the rules of IHL protecting the natural environment.[674]

Armed forces

323. The term "armed forces", as used in the formulation of this rule, must be understood in its generic meaning, and is therefore inclusive of the forces of a non-state armed group.[675] Indeed, the dissemination of the rules of IHL, including those protecting the natural environment, is an indispensable tool to be utilized to ensure respect for these rules. It is often recalled that "one of the worst enemies of the Geneva Conventions is ignorance".[676] In practice, armed groups have frequently allowed the ICRC to disseminate IHL among their members,[677] and some have integrated IHL rules protecting the natural environment into their codes of conduct.[678]

[671] ICRC, *Commentary on the First Geneva Convention*, 2016, para. 2775. For an example of measures taken by a State, see Poland, Statement before the Sixth Committee of the UN General Assembly, 69th session, Agenda item 78, 3 November 2014. On measures taken by non-state armed groups to ensure compliance with their obligations, see e.g. P. Bongard, "Engaging armed non-state actors on humanitarian norms: Reflections on Geneva Call's experience", *Humanitarian Exchange Magazine*, No. 58, July 2013.

[672] NATO, "Environment – NATO's stake", 9 December 2014. See also e.g. Multinational Capability Development Campaign (MCDC), *Understand to Prevent: Practical guidance on the military contribution to the prevention of violent conflict*, MCDC, April 2017, which contains advice on environmental aspects, pp. 189–197. For the relevance of environmental training and education, see NATO, STANAG 7141, *Joint NATO Doctrine for Environmental Protection during NATO-Led Military Activities*, pp. 5-1–5-4.

[673] See e.g. China, *Regulations of the People's Liberation Army of China on the Protection of Environment*, 2004; and China, *Regulations of the Chinese People's Liberation Army on Environmental Impact Assessment*, 2006.

[674] B. Clarke, C. Rouffaer and F. Sénéchaud, "Beyond the Call of Duty: Why shouldn't video game players face the same dilemmas as real soldiers?", *International Review of the Red Cross*, Vol. 94, No. 886, Summer 2012, pp. 718–720.

[675] In particular, Article 19 of the 1977 Additional Protocol II states that the Protocol "shall be disseminated as widely as possible", and this provision binds non-state armed actors that are party to conflicts governed by this Protocol.

[676] Pictet (ed.), *Commentary on the First Geneva Convention*, 1952, p. 348.

[677] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 142, p. 505: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule142.

[678] For examples of codes, commitments or policies of non-state armed groups that address the protection of the natural environment, see J. Somer, "Non-state armed groups continue to cause environmental damage in conflicts, yet states are reluctant to meaningfully address their conduct for fear of granting them legitimacy" (blog), Conflict and Environment Observatory, 4 December 2015.

Rule 30 – Dissemination of international humanitarian law, including of the rules protecting the natural environment, to the civilian population

Each State must encourage the teaching of international humanitarian law, including of the rules protecting the natural environment, to the civilian population.

Commentary

324. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law, and practice does not indicate that any distinction is made between teaching IHL applicable in international armed conflicts and that applicable in non-international armed conflicts.[679] The rule reflects obligations set down in the 1949 Geneva Conventions,[680] the 1954 Hague Convention for the Protection of Cultural Property[681] and the 1977 Additional Protocols I and II.[682] It is furthermore a measure by which States can ensure respect for IHL by private persons.[683]

325. Programmes of civil instruction could include training courses for media professionals – to improve the accuracy and incisiveness of reporting on legal issues in armed conflict – as well as integration of the subject into school and university curricula.[684] Globally, initiatives such as the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict, declared by the UN General Assembly to fall on 6 November every year,[685] or the Massive Open Online Course on Environmental Security and Sustaining Peace, which draws on experiences from the work of UNEP,[686] can also serve as platforms to boost awareness among the civilian population of the rules protecting the natural environment in armed conflict.

326. Non-state armed groups that are party to conflicts to which Additional Protocol II applies will be bound by Article 19 of the Protocol, which states that "[t]his Protocol shall be disseminated as widely as possible". Non-state armed groups that are party to non-international armed conflicts to which Additional Protocol II does not apply, although not bound as a matter of customary law (given that the customary rule applies expressly to "States"), are nevertheless encouraged to provide instruction in the applicable rules of IHL to the civilian population living under their control.[687]

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[679] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 143 and commentary, p. 505: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule143 and related practice.

[680] First Geneva Convention (1949), Art. 47; Second Geneva Convention (1949), Art. 48; Third Geneva Convention (1949), Art. 127; Fourth Geneva Convention (1949), Art. 144. With regard to the legal obligation to disseminate, and the meaning of the terms "undertake" and "dissemination", see ICRC, *Commentary on the First Geneva Convention*, 2016, paras 2759 and 2772. For the meaning of "if possible", see also Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 143, p. 506: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule143.

[681] Hague Convention for the Protection of Cultural Property (1954), Art. 25.

[682] Additional Protocol I (1977), Art. 83; Additional Protocol II (1977), Art. 19. With regard to the scope of the obligation to "disseminate" in Additional Protocol II, see Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, commentary on Article 19 of Additional Protocol II, p. 1488, para. 4910, and p. 1489, para. 4912.

[683] ICRC, *Commentary on the First Geneva Convention*, 2016, paras 150–151. For further details on the obligation to respect and ensure respect for IHL, see also Rule 26 of the present Guidelines.

[684] ICRC, *Commentary on the First Geneva Convention*, 2016, paras 2779–2781.

[685] UN General Assembly, Res. 56/4, Observance of the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict, 5 November 2001.

[686] For more details, see Global Land and Tool Network, Massive Open Online Course on Environmental Security and Sustaining Peace: https://gltn.net/2019/02/07/massive-open-online-course-mooc-on-environmental-security-and-sustaining-peace/.

[687] See UN General Assembly, Res. 3032 (XXVII), Respect for human rights in armed conflicts, 18 December 1972, para. 2; UN General Assembly, Res. 3102 (XXVIII), Respect for human rights in armed conflicts, 11 December 1973, para. 5; and Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 143, p. 508: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule143.

Rule 31 – Legal advice to the armed forces on international humanitarian law, including on the rules protecting the natural environment

Each State must make legal advisers available, when necessary, to advise military commanders at the appropriate level on the application of international humanitarian law, including of the rules protecting the natural environment.

Commentary

327. This general rule, which is stated here with the addition of an express reference to the natural environment, has been established as a norm of customary international law applicable to State armed forces, and practice does not indicate that any distinction is made between advice on IHL applicable in international armed conflicts and that applicable in non-international armed conflicts.[688] As a matter of treaty law, this rule is set down in Article 82 of the 1977 Additional Protocol I. This rule is also a means to fulfil the obligation to respect and ensure respect for IHL.[689]

328. This rule presupposes that legal advisers will be versed in the applicable IHL rules protecting the natural environment and will therefore be equipped to provide legal advice to military commanders when it is necessary to ensure that the State's armed forces comply with the rules. The present Guidelines are intended as a resource to assist legal advisers in this task.

[688] See Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, Rule 141 and commentary, p. 500: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule141 and related practice.

[689] See ICRC, *Commentary on the First Geneva Convention*, 2016, para. 148. See also Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 141, p. 501: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule141. The obligation to make legal advisers available is a specific provision aimed at ensuring respect for IHL. On the relationship between these two obligations, see Geiss, "The obligation to respect and to ensure respect for the Conventions", p. 119. Regarding the obligation to respect and ensure respect for IHL, see also Rule 26 of the present Guidelines.

Rule 32 – Evaluation of whether new weapons, means or methods of warfare would be prohibited by international humanitarian law, including by the rules protecting the natural environment

In the study, development, acquisition or adoption of a new weapon, means or method of warfare, States party to Additional Protocol I are under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by applicable rules of international law, including those protecting the natural environment.

Commentary

329. This rule is established by Article 36 of the 1977 Additional Protocol I and is therefore a legal obligation for States party to that Protocol. Regardless of whether they are party to the Protocol, however, all States have an interest in assessing the legality of new weapons. The exercise contributes to ensuring that a State's armed forces are capable of conducting hostilities in accordance with its international obligations.[690] In the view of the ICRC, the requirement to carry out legal reviews of new weapons also flows from the obligation to ensure respect for IHL.

330. Most of the treaty and customary rules against which a new weapon or method is to be reviewed apply in both international and non-international armed conflicts, with the scope of application in each case being determined by reference to the relevant rule engaged in the review.[691]

The study, development, acquisition or adoption

331. The obligation in Article 36 of Additional Protocol I applies to all States Parties, including those that purchase weapons and those that manufacture them.[692] The reference in this rule to "the study, development, acquisition or adoption" of new weapons, means or methods of warfare denotes that a review should be conducted at the earliest possible stage.[693]

A new weapon, means or method of warfare

332. The reference to "weapons, means or methods of warfare" establishes a very broad material scope for this rule.[694] The obligation of legal review therefore covers weapons of all types, be they anti-personnel or anti-materiel, as well as weapon systems. The review also covers methods of warfare, meaning the ways in which weapons and other means of warfare are used pursuant to military doctrine, tactics, rules of engagement, operating procedures and countermeasures.[695] Of relevance for the protection of the natural environment, the drafters of this provision of Additional Protocol I were specifically concerned with the consideration of, among other things, geophysical or ecological warfare when new weapons, means or methods of warfare are reviewed.[696] Carrying out legal reviews of proposed new weapons is of particular importance today in light of the rapid development of new technologies.

Evaluation with regard to rules protecting the natural environment

333. In determining the legality of a new weapon, means or method of warfare, the reviewing authority must apply existing international law rules which bind the State, be they treaty based or customary. Rules relevant for the review therefore include: (1) prohibitions of or restrictions on specific weapons, means or methods of warfare under international treaty and customary law (such as the prohibitions of chemical and biological weapons);[697] and (2) general prohibitions of or restrictions on weapons, means or methods of warfare under treaty and customary

[690] For this purpose, see ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977*, ICRC, Geneva, January 2006, p. 1.

[691] *Ibid.*, p. 11, in particular, fn. 25, which recalls that the *Tadić* decision of the ICTY Appeals Chamber, in relation to prohibited means and methods of warfare, observed that "what is inhumane, and consequently proscribed, in international wars, cannot but be inhumane and inadmissible in civil strife": ICTY, *Prosecutor* v. *Tadić*, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, 2 October 1995, paras 119 and 127.

[692] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 426, para. 1473.

[693] ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare*, pp. 23–24, in particular fn. 79.

[694] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, p. 398, para. 1402.

[695] ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare*, p. 9.

[696] Sandoz/Swinarski/Zimmermann (eds), *Commentary on the Additional Protocols*, pp. 427–428, para. 1476.

[697] For prohibitions or restrictions on specific weapons in the context of the protection of the natural environment, see Rules 19–25 of the present Guidelines. For a list of rules prohibiting or restricting the use of specific weapons generally, see ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare*, pp. 11–14. Since its publication, treaties comprehensively prohibiting cluster munitions (2008) and nuclear weapons (2017) have been adopted, although the latter had not yet entered into force at the time of writing.

international humanitarian law (such as the prohibition of using weapons which are by nature indiscriminate),[698] including the rules protecting the natural environment, as applicable.[699] As provided in Article 36 of Additional Protocol I, rules applicable to the legal review also include "any other rule of international law applicable" to the State, such as international human rights law or international environmental law, as relevant.

334. When determining the effects of the weapon under review on the natural environment,[700] questions to guide the collection of empirical data could include:[701]

- Have adequate scientific studies on the effects of the weapon on the natural environment been conducted and examined?
- What type and extent of damage are expected to be directly or indirectly caused to the natural environment?
- For how long is the damage expected to last; is it practically/economically possible to reverse the damage, i.e. to restore the natural environment to its original state, and what would be the time needed to do so?
- What is the direct and indirect impact of the environmental damage on the civilian population?
- Is the weapon specifically designed to destroy or damage the natural environment, or to cause environmental modification?

335. It is furthermore important to note that, even where an evaluation does not provide scientific certainty as to the effects on the natural environment of a new weapon, means or method of warfare, this does not absolve a State from taking precautions against such effects to prevent undue damage.[702]

[698] For a list of relevant general rules, see ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare*, pp. 15–17.

[699] See Rules 1–4 of the present Guidelines, which provide specific protection to the natural environment. For the general prohibitions or restrictions on weapons, means and methods of warfare in the specific context of the protection of the natural environment, see Part III of the present Guidelines.

[700] In the context of the ILC's work on the protection of the environment in relation to armed conflicts, Colombia and Lebanon underlined the relevance of Article 36 of Additional Protocol I for the review of environmental impact in statements before the Sixth Committee of the UN General Assembly: Colombia, 74th session, Agenda item 79, 1 November 2019; and Lebanon, 74th session, Agenda item 79, 5 November 2019.

[701] These questions appear in ICRC, *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare*, pp. 19–20.

[702] Henckaerts/Doswald-Beck (eds), *ICRC Study on Customary International Humanitarian Law*, Vol. I, commentary on Rule 44, p. 147: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule44.

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Annex: List of peer reviewers

In 2019, the ICRC submitted a draft of the Guidelines to a number of peer reviewers selected for their expertise in the subject matter and for geographical representation. The purpose of the peer review was to improve quality and practical usefulness rather than to obtain endorsement of the Guidelines, which are published under the sole authority of the ICRC. Peer reviewers provided comments in their personal capacity. The feedback has been essential to the drafting process.

The peer reviewers consisted of the following persons:

Australia
Prof. Stuart Kaye, Director at Australian National Centre for Ocean Resources and Security, University of Wollongong

China
Prof. Yifeng Chen, Associate Professor of International Law and Assistant Director of the Institute of International Law, Peking University Law School

France/Switzerland
Prof. Laurence Boisson de Chazournes, Professor of International Law, University of Geneva; Member of the Institut de Droit International

Germany
Prof. Michael Bothe, Professor emeritus of Public Law, University of Frankfurt; former Co-Chair of the Environment and Armed Conflict Specialist Group, International Union for the Conservation of Nature

Dr Heike Spieker, Deputy Director of the International Services and National Relief Division, German Red Cross

India
Dr Bharat H. Desai, Professor of International Law, Jawaharlal Nehru Chair in International Environmental Law and Chairman of the Centre for International Legal Studies, School of International Studies, Jawaharlal Nehru University, New Delhi

Iraq
Dr Ahmed Aubais Alfatlawi, Professor of Public International Law, College of Law, University of Kufa

Israel
Maj. Guy Keinan, International Law Department, Military Advocate General's Corps, Israel Defense Forces

Japan
Prof. Kyo Arai, Professor of International Law, Doshisha University, Kyoto

Russia
Prof. Uzeyir Mammadov, Associate Professor of International Law, Kazan Federal University

Prof. Natalia Sokolova, Doctor of Law, Associate Professor, Head of the Department of International Law, Academic Director of the Research Institute, Kutafin Moscow State Law University

Sri Lanka/United States
Dr Sumudu Atapattu, Director of Research Centers and International Programs, University of Wisconsin Law School; Attorney-at-Law, Supreme Court of Sri Lanka

Sweden
Her Excellency Marie Jacobsson, Principal Legal Adviser on International Law, Ministry for Foreign Affairs; former Special Rapporteur on the protection of the environment in relation to armed conflicts, International Law Commission

Uganda

Col. Godard Busingye, Deputy Chief of Legal Services, Ministry of Defence and Veteran Affairs; Associate Professor, Kampala International University

United Kingdom

Prof. Karen Hulme, Head of the School of Law, University of Essex

United States

Prof. Daniel Bodansky, Regents' Professor, Sandra Day O'Connor College of Law, Arizona State University; Senior Adviser, Center for Climate and Energy Solutions; Member of the State Department Advisory Committee on International Law

Prof. Michael Schmitt, Professor of International Law, University of Reading, United Kingdom; Francis Lieber Distinguished Scholar, West Point; Charles H. Stockton Distinguished Scholar-in-Residence, US Naval War College

Mr Charles Trumbull, Attorney Adviser, Department of State

International and other organizations

Mr Guido Broekhoven, Head of Policy Research and Development, WWF International *(review of Recommendation 17)*

Mr Carl Bruch, Director of International Programs, Environmental Law Institute; President, Environmental Peacebuilding Association

Mr David Jensen, Head of the Environmental Peacebuilding Programme, United Nations Environment Programme

Ms Amanda Kron, Legal Adviser and Project Coordinator for Climate Change and Security, Crisis Management Branch, United Nations Environment Programme; Member of the International Law Association Committee on the Role of International Law in Sustainable Natural Resource Management for Development

Her Excellency Marja Lehto, Special Rapporteur on the protection of the environment in relation to armed conflicts, International Law Commission; Senior Expert on Public International Law, Ministry for Foreign Affairs, Finland

Dr Mara Tignino, Lead Legal Specialist, Platform for International Water Law, Geneva Water Hub; Reader, Faculty of Law and Institute for Environmental Sciences, University of Geneva

Mr Wim Zwijnenburg, Programme Leader, Humanitarian Disarmament, PAX, Netherlands

The ICRC helps people around the world affected by armed conflict and other violence, doing everything it can to protect their lives and dignity and to relieve their suffering, often with its Red Cross and Red Crescent partners. The organization also seeks to prevent hardship by promoting and strengthening humanitarian law and championing universal humanitarian principles.

People know they can count on the ICRC to carry out a range of life-saving activities in conflict zones and to work closely with the communities there to understand and meet their needs. The organization's experience and expertise enables it to respond quickly and effectively, without taking sides.

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International Committee of the Red Cross
19, avenue de la Paix
1202 Geneva, Switzerland
T +41 22 734 60 01
shop.icrc.org

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