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CONSEQUENCES OF ENVIRONMENTAL CRIMES CAUSED BY RUSSIAN AGGRESSION: PROBLEMS OF FIXATION AND PROSPECTS FOR INTERNATIONAL PROSECUTION

ABSTRACT: This article examines the legal framework for prosecuting environmental crimes resulting from Russian aggression against Ukraine. Despite existing international humanitarian law provisions in the ENMOD Convention, Additional Protocol I, and Rome Statute, the threshold for proving „widespread, long-term, and severe” environmental damage remains prohibitively high, with no successful prosecutions to date. Ukraine has documented over 200 criminal proceedings concerning environmental war crimes, with damages exceeding 250 billion hryvnias. The study analyzes national documentation efforts through governmental agencies and civil society initiatives like EcoThreat platform. The research highlights the first-ever wartime ecocide prosecution attempt involving the Kharkiv nuclear facility attack. Recent developments, including PACE Resolution on ecocide codification and the Register of Damage establishment, suggest evolving international response mechanisms. The article concludes that while current IHL capabilities remain limited, Ukraine’s experience may catalyze strengthened international environmental monitoring and accountability frameworks.

KEYWORDS: environmental war crimes, ecocide, international humanitarian law, ENMOD Convention, Additional Protocol I, Rome Statute, Russian aggression, Ukraine, environmental damage documentation, Register of Damage, international criminal prosecution, armed conflict environmental protection

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INTRODUCTION

Problematic situation

Armed aggression of Russia against Ukraine continues to cause environmental degradation and destruction, affecting the well-being, health and survival of people not only in Ukraine. The consequences of this damage will persist for years or decades after wars end, leaving indelible impacts on the lives of local populations.

The environmental consequences are manifold. Attacks may lead to contamination of water, soil and land and release pollutants into the air. Explosives contaminate soil and water sources and harm wildlife.

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.

RESEARCH OBJECTIVES

The primary objective of this research is to analyze the current international legal framework for prosecuting environmental crimes committed during armed conflicts, with specific focus on Russian aggression against Ukraine. The study aims to: (1) examine existing international humanitarian law provisions protecting the environment during warfare, including the ENMOD Convention, Additional Protocol I to Geneva Conventions, and the Rome Statute; (2) identify key challenges in documenting and prosecuting environmental war crimes, particularly the „widespread, long-term, and severe damage” threshold; (3) assess Ukraine’s national efforts in recording environmental damage through criminal proceedings and civil society initiatives; (4) evaluate the potential of recent international developments, including the Register of Damage and PACE resolutions on ecocide codification, to strengthen accountability mechanisms. The research ultimately seeks to determine whether current legal instruments are adequate for addressing environmental destruction in contemporary conflicts and to propose pathways for enhancing international environmental protection during warfare.

RESEARCH METHODS

This study employs a comprehensive legal analysis methodology combining doctrinal research with empirical case examination. The primary method involves systematic analysis of international legal instruments, including treaties (ENMOD Convention, Geneva Conventions Additional Protocol I, Rome Statute), UN resolutions, and PACE documents. Comparative legal analysis is utilized to examine the evolution and interpretation of environmental protection provisions in IHL. The research incorporates empirical data from Ukrainian governmental sources, particularly the Office of the Prosecutor General and Ministry of Environmental Protection, analyzing 209 criminal proceedings documenting environmental crimes. Qualitative content analysis is applied to civil society documentation efforts, including the EcoThreat platform and Ecoaction’s monitoring initiatives. The study also employs case study methodology, examining the Kharkiv

Institute of Physics nuclear facility attack as the first ecocide prosecution attempt. Documentary analysis of the newly established Register of Damage provides insights into evolving compensation mechanisms for environmental warfare damages.

Evolution of international legal framework for environmental protection in armed conflicts

Armed conflicts inflict environmental harm through **direct** targeting or collateral damage resulting from various military tactics and weaponry. The natural environment also experiences degradation when warfare destroys civilian infrastructure, particularly when combat operations compromise water supply systems, sewage treatment facilities, or power grids essential for their functioning.

Indirect consequences of warfare create additional environmental challenges through governmental breakdown and failing infrastructure networks, leading to progressive ecological deterioration. These problems intensify during prolonged hostilities. Forced migration often leads to overexploitation of refuge areas, placing excessive pressure on local ecosystems. The illegal extraction and destructive use of natural resources to finance military operations or enrich individuals generates enduring ecological harm in modern warfare. Meanwhile, weakened environmental governance institutions amplify these negative effects and obstruct post-conflict rehabilitation efforts.

For several decades, environmental devastation from military conflicts has prompted serious international attention. This concern has driven nations to strengthen various legal frameworks—encompassing humanitarian law, environmental treaties, human rights conventions, criminal justice mechanisms, and maritime regulations—to enhance environmental safeguards. Global momentum for protecting nature during warfare emerged in the 1970s, following widespread environmental destruction from chemical defoliants like Agent Orange in Vietnam, which sparked international protests and highlighted the urgent requirement for targeted legal measures to prevent ecological damage during military operations¹.

This prompted the adoption in 1976 of **The Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques** (ENMOD Convention)². It is an instrument of international disarmament law specifically intended to protect the environment in the event of armed conflict. It prohibits hostile use of the environment as a means of warfare. The ENMOD Convention was negotiated at the Conference of the Disarmament Commission and was adopted by the General Assembly of the United Nations on 10 December 1976. It was opened for signature in Geneva on 18 May 1977, ratified by UkrSSR on 25.05.1978 and entered into force on 5 October 1978.

¹ 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. URL: https://www.icrc.org/sites/default/files/document_new/file_list/guidelines_on_the_protection_of_the_natural_environment_in_armed_conflict_advance-copy.pdf

² <https://disarmament.unoda.org/enmod/>

States party to the Convention undertake “not to engage in military or any other hostile use of environmental modification techniques having **widespread, long-lasting** or **severe** effects as the means of destruction, damage or injury to any other State Party” (Article I, para. 1).

The States Parties further undertake not to “assist, encourage or induce” any State, group of States or international organization to engage in such activities (Article I, para. 2).

The environmental modification techniques covered are those intended to change “through the deliberate manipulation of natural processes, the dynamics, composition or structure of the Earth” (Article II).

To be banned by Article I, the use of prohibited techniques must meet all the following criteria:

- be for hostile purposes;
- cause destruction, damage or injury to another State Party;
- have widespread, long-lasting or severe effects.

Any State with reason to believe that any other State is violating the Convention may lodge a complaint with the Security Council of the United Nations, on the basis of which the Security Council may conduct an enquiry (Article V, para. 3 and 4). Each State Party also undertakes to assist any State Party that so requests, if the Security Council decides that the party concerned has been exposed to danger as a result of a violation of the Convention (Article V, para. 5).

Each State party to the 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” (Article IV)³.

Specifically, every nation must establish domestic criminal laws that prohibit and punish the employment of banned environmental modification methods within their borders and throughout all territories under their authority or governance. Furthermore, such legislation needs to incorporate mechanisms for prosecuting violations that occur beyond national boundaries.

Meaningful environmental safeguards during warfare require comprehensive global adoption of both the ENMOD Convention and Additional Protocol I. Although the anticipated novel weapons systems that prompted the Convention’s creation have yet to materialize, the potential danger persists. Achieving maximum international participation in these treaties serves a crucial deterrent function in preventing future environmental warfare.

Following consultation with an international group of specialists, the ICRC drew up a set of Guidelines for military manuals and instructions on the protection of the environment in times of armed conflict as a guide for States to use when incorporating this material into such documents⁴.

³ https://treaties.un.org/doc/Treaties/1978/10/19781005%2000-39%20AM/Ch_XXVI_01p.pdf

⁴ 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,

The provisions of **The Additional Protocol I of 1977 to the Geneva Conventions of 1949** form an essential complement to those of the ENMOD Convention, as they directly prohibit damage to the environment during armed conflict. applies to international armed conflict and contains two specific provisions for the protection of the environment.

These provisions are clearly complementary to the ENMOD Convention in the event of armed conflict: while the Convention prohibits deliberate modification of the environment as a means of warfare, Additional Protocol I prohibits attacks on the environment as such, regardless of the means used.

Article 35, para. 3 of Additional Protocol I prohibits the use of “methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment”⁵.

Using the same language, Article 55 aims to protect the population, whose health and survival in the event of armed conflict could be endangered by damage to the environment. The article also prohibits attacks on the natural environment by way of reprisals.

The Rome Statute of 1998 incorporates some of the prohibitions contained in Additional Protocol I. For instance, the International Criminal Court has jurisdiction in respect of war crimes that consist in “intentionally launching an attack in the knowledge that such attack will cause incidental [...] 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” (Article 8, para. 2 [b, iv])⁶.

Legal standards and threshold requirements: the „widespread, long-term, and severe” trilogy

So, what does “widespread, long-term and severe damage” mean?

Widespread damage encompasses harm affecting areas of „several hundred square kilometres” or more. The United Nations Environment Programme suggests this interpretation as a foundational benchmark for defining the scope. Given that this represents the sole established legal interpretation available, adopting it as a reference point helps prevent subjective determinations of a criterion that lacks formal codification.

Long-term damage under Additional Protocol I denotes environmental harm persisting over prolonged timeframes. Convention interpretation typically requires effects enduring for multiple decades (negotiators suggested 20-30 year minimums). This differs markedly from the ENMOD Convention’s „long-lasting” criterion, which encompasses „several months or about one seasonal cycle.” The precise parameters remain ambiguous since negotiators reached no formal consensus during Protocol drafting. The criterion encompasses harm exceeding short-lived combat effects (such as shelling damage) yet potentially spanning anywhere from ten to thirty

WITH COMMENTARY. URL: https://www.icrc.org/sites/default/files/document_new/file_list/guidelines_on_the_protection_of_the_natural_environment_in_armed_conflict_advance-copy.pdf

⁵ <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977>

⁶ <https://www.icc-cpi.int/publications/core-legal-texts/rome-statute-international-criminal-court>

years. Contemporary interpretations emphasize assessing aggregate and secondary impacts, particularly regarding environmental persistence of hazardous materials.

Severe damage within Additional Protocol I encompasses environmental harm producing substantial adverse effects. Though negotiation records lack precise parameters, the concept relates to damage intensity affecting civilian populations. This threshold includes ecological disruption or population-level health impacts, specifically encompassing harm that:

- creates major ecosystem disruptions,
- threatens population health or survival,
- produces birth defects, genetic mutations, or cancer risks,
- generates substantial secondary ecological impacts.

Routine combat operations involving standard munitions or military maneuvers typically remain beneath this standard. The criterion lacks precision but should minimally encompass substantial interference with human welfare or ecological resources.

Mechanisms of environmental protection under IHL

Other rules and principles of **International Humanitarian Law** also confer protection on the environment during armed conflict, though without mentioning it specifically. This is particularly the case with general customary principles regarding the conduct of hostilities, such as the principle of distinction, which limits attacks to military objectives, and that of proportionality, which prohibits the use of means and methods of warfare that cause excessive damage.

IHL protects natural environment in three different ways:

1. Direct Environmental Protection Rules specifically created to protect the environment that:

- prohibit warfare methods causing widespread, long-term, and severe environmental damage,
- ban the use of environmental destruction as a weapon,
- forbid attacking the environment as a form of retaliation.

2. Protection Through General Civilian Object Status through:

- the principle of distinction between military and civilian objects,
- the principle of proportionality in attack assessment,
- required precautionary measures before attacks.

3. Weapons-Specific Protection through:

- specific regulations on certain types of weapons,
- restrictions on weapons that could cause environmental harm,
- weapons use protocols that consider environmental impact⁷.

⁷ <https://webapps.ilo.org/public/libdoc/igo/2009/447766.pdf>

Documentation and Investigation of Environmental War Crimes in Ukraine

According to the Office of the Prosecutor General (as of July 2024), prosecutors from specialized environmental prosecutor's offices provided procedural guidance in 209 criminal proceedings (as clarified by the Ministry of Environmental Protection and Natural Resources of Ukraine – regarding 367 episodes) concerning crimes in the field of environmental protection related to the armed aggression of the Russian Federation⁸. The estimated amount of damages in these proceedings (based on calculations by the Ministry of Environment and the State Environmental Inspectorate of Ukraine) exceeds 250 billion hryvnias.

The main legal act regulating the determination of harm and damages caused to Ukraine as a result of the armed aggression of the Russian Federation is the Resolution of the Cabinet of Ministers of Ukraine No. 326 dated March 20, 2022, which approved the relevant Procedure and a number of methodologies, including determining the extent of environmental damage.

The main problems in the investigation, as indicated by the Office, are constant shelling of territories, the danger of conducting investigative actions in areas contaminated with explosives or in areas of active hostilities, as well as the prohibition of unauthorized persons in border areas.

The Ministry of Environmental Protection and Natural Resources of Ukraine emphasizes that when investigating crimes of this category, it is important to document the state of the environment, as well as have data from its monitoring over a certain period of time. In addition, the recording and documentation of environmental crimes includes many aspects and nuances of criminal procedure, such as ensuring the relevance and admissibility of evidence, compliance with the correct procedure for their collection, receipt, storage and analysis, timeliness of investigative actions, ensuring respect for the rights of all participants in the process, including those who are being prosecuted, etc.

It is clear that civil society institutions play a special role in recording environmental crimes, in addition to specially authorized bodies. An important step was the adoption in 2023 of the Resolution of the Cabinet of Ministers of Ukraine No. 783 dated July 28, 2023. This resolution regulated the functioning of the electronic resource EcoThreat, through which appeals regarding environmental damage can be sent, and also established the procedure for recording facts of such damage, and the procedure for organizing and conducting an inspection of the site of such damage.

Another excellent example is the initiative of the Center for Environmental Initiatives „Ecoaction.” Together with a volunteer team, since February 24, 2022, the organization has been monitoring cases of potential environmental damage caused by Russian aggression, publishing an interactive map where one can see not only the geography of case distribution and categories of damage, but also the total number of registered cases⁹. All information was collected from open

⁸ <https://pravo.ua/wp-content/uploads/2023/07/Ekologichnyi-dohovir.pdf>

⁹ <https://ecoaction.org.ua/warmap.html>

data sources (official government communications and media), and the geographical locations of points are indicated approximately.

According to the Office of the Prosecutor General, the world's first case of criminal prosecution for the crime of ecocide committed during wartime concerns the shelling of the „Neutron Source” subcritical nuclear installation and nuclear materials storage facility operating at the Kharkiv Institute of Physics and Technology. In February 2024, suspicion was announced for crimes under Part 2 of Article 28, Part 2 of Article 437, Part 1 of Article 438, Article 441, Part 3 of Article 110 of the Criminal Code of Ukraine against a Russian colonel general and four of his subordinates who directed the shelling of this facility. The pre-trial investigation continues.

Given the fact that in Ukraine, all cases of environmental damage resulting from military actions are currently being recorded and investigated within criminal proceedings under Articles 438, 441 of the Criminal Code of Ukraine, this ensures the collection of evidence of crimes against the environment, and the subsequent prosecution of guilty persons at the national level. And in the future, it will become the foundation for and facilitate proving the facts of damage to Ukraine (including environmental damage) in international courts.

Emerging International Accountability Mechanisms

It should be remembered that on January 5, 2023, the Parliamentary Assembly of the Council of Europe (PACE) adopted the Resolution „The impact of armed conflicts on the environment.”¹⁰ The resolution, in particular, addresses the need to codify the concept of „ecocide” in both national legislation and international law. It is also necessary to amend the Rome Statute of the International Criminal Court to add ecocide as a separate type of crime. Member states must take necessary measures to prohibit the use of prohibited weapons during armed conflicts, which, among other things, disproportionately affect the environment and make human life impossible in the affected area.

It is also important to mention the creation of Register Of Damage Caused By The Aggression Of The Russian Federation Against Ukraine¹¹ – and its Claims category B3.1 – Environmental damage. It was adopted by the Board of the Register of Damage Caused by the Aggression of the Russian Federation Against Ukraine on 21 February 2025 and approved by the Conference of Participants of the Register of Damage Caused by the Aggression of the Russian Federation Against Ukraine on 28 February 2025.

“Environmental damage” shall mean any adverse impact on the fauna, flora, soil, water, air, ecosystems formed by these elements, as well as characteristic aspects of the landscape and environmental amenities or on the interaction among these factors. This includes natural elements that are or may be the product of human intervention, such as foodstuff, agricultural areas, drinking water and livestock.

¹⁰ <https://uanimals.org/media/en/statti-en/how-to-hold-russia-accountable-for-ecocide/>

¹¹ <https://www.rd4u.coe.int/en/>

Losses or expenses associated with damage to the environment that can be claimed under this category can result from:

- a. reasonable and proportionate measures to prevent and abate environmental damage;
- b. reasonable and proportionate measures to monitor and assess environmental damage for the purpose of evaluating and abating the damage;
- c. reasonable and proportionate measures for cleaning, restoring and reinstating the environment;
- d. the impairment of the environment, including non-commercial environmental goods and services or loss of intrinsic ecological value.

CONCLUSION

As we can see, the current capabilities of international criminal (and humanitarian) law regarding accountability for environmental damage are quite limited. Formally, damage to the environment may constitute a violation of international humanitarian law, but the threshold of requirements is quite high. In particular, „widespread, long-term, and severe damage to the environment” must be documented, but there has not yet been a single case of official recognition of such a violation. According to the Rome Statute of the International Criminal Court, the threshold is even higher, as such damage can be considered a war crime only if it violates the principle of proportionality (the damage caused is excessive in comparison to the expected direct military advantage).

But the journey is completed by those who keep walking. I have great hopes that Russia’s invasion of Ukraine may become an impetus for awakening mechanisms of proper international response, leading to the creation of a system of powerful international environmental monitoring and accountability policy. All this creates significant prerequisites for future prosecution for damage to the natural environment.



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