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International and National Mechanisms Combating Ecosystems' Damage and Environmental Crimes to Foster Sustainable Development

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Abstract

This article examines international and national mechanisms for combating crime against the environment. Arguments are presented to add the crime of ecocide into the Rome Statute of the International Criminal Court, as well as to create a special international human rights tribunal that can potentially hear cases related to ecocide. A number of bodies, programs, international networks, and transnational non-governmental non-profit organizations should be promoted to directly or indirectly aim at combating crime against the environment. At the same time, the necessity of adopting a comprehensive approach to the international cooperation among these institutions and law enforcement agencies is warranted, given contemporary challenges and threats, in particular with Interpol, a robust institutional framework to combating environmental crime. The importance of establishing universal national and interstate mechanisms for the restoring and preserving ecosystems to combat environmental crimes effectively is underscored. These international regulations should be recognized through relevant resolutions of the UN General Assembly and other international documents. A conceptual inference drawn is ~~is~~ the imperative for comprehensive national measures to combat ecocide, including the development of cohesive state policies, the establishment of an effective environmental monitoring system, and the documentation of incurred damages.

Keywords

Ecosystem; Sustainability; Environmental crimes; Ecocide; Interpol; International law

Introduction

Among the most urgent contemporary problems, one is the damage of ecological systems - pollution, depletion, and distortion of ecological balance. The problem has acquired a global character and requires an adequate response, which the world community is

desperately trying to find. A change in the international legal order is becoming inevitable. In particular, a challenge of creating an effective international legal mechanism to protect environment is clearly perceived urgent. A transition from chaos and dangerous situations to a stable society is desirable. Such a transition requires collective efforts of society too (Shumylo *et al*., 2022), appropriate policies at the State level (Kovalenko *et al*., 2023), and carrying responsibilities. According to some studies, environmental crime is among the fourth largest criminal activities in the world, with an increase at a rate of 5-7% per year. It threatens not only habitats and wildlife populations, but also affects entire ecosystems. Majority of environmental crimes can cause higher profits and have a relatively low risk of detection (Grishakov, 2023). Taking into account the significant growth of the globalization processes, no State can achieve the state of absolute protection of its environment. This is, especially, true when the environment is endangered and damaged during armed actions and conflict situations (Matthew, 2017).

The international reaction to Russia's invasion on Ukraine is an example of a secondary attitude towards the environment. Largely, world attitudes are still deeply rooted in a utilitarian view of nature. Along with direct civilian casualties, the Russian aggression has led to many far-reaching environmental violations (Khrushch *et al*., 2023). For example, the seizure of the Chernobyl nuclear power plant accident site led to the mobilization of "radioactive dust" and an increase in "detected radiation [that] can spread radioactive material to new areas".[1] Since the conflict is of an international nature, there is a possibility that environmental violations like "transcend geopolitical borders" (Palarczyk, 2023) will finally attract the attention of the International Criminal Court, forcing consolidation of the efforts of the world community to improve the environmental situation in the region, and bringing the guilty parties to criminal liability.

The sum of these circumstances indicates the relevance of the highlighted issues and sets the overarching goal of this scientific article: to outline international and national strategies addressing ecosystem damage and environmental crimes to promote sustainable development. Achieving this objective requires solving the following tasks: examining the notion and indicators of international environmental crimes, elucidating the precise dimensions of global accountability for ecocide, outlining the array of international bodies and institutions in combating environmental crimes, and characterizing the specifics of combating environmental crimes within the context of Ukraine.

Concepts and Signs of International War Crimes against the Environment

International humanitarian law aims primarily to protect victims of armed conflict and to regulate the conduct of hostilities. This reflects the need of establishing a regulatory framework to mitigate the inevitable consequences inflicted on people, property and the environment during times of war.

[1] Environmental Peacebuilding Association, Open Letter on the Environmental Dimensions of the Russian Invasion of Ukraine (Environmental Peacebuilding, 03/03/2022) Available online at: https://www.environmentalpeacebuilding.org/library/show/LibraryItem-6528 (accessed on 16 April 2024).

The environment receives special protection under Rules 43, 44 and 45 of Customary International Humanitarian Law[2]. The study of the International Committee of the Red Cross, "Customary International Humanitarian Law", serves as an authoritative doctrinal codification of these norms, a rarity within other domains of international law. It underscores the application of general principles of conducting military operations to the environmental concerns, emphasizing the importance of environmental protection during military activities. Moreover, it explicitly prohibits the use of warfare methods intended or likely to cause significant, long-lasting damage to the environment. Deliberate environmental destruction as a tactic[3] of war is also strictly forbidden.

In international criminal law, paramount importance is given to safeguarding the rights and interests of people, necessitating the broader protection of the environment for the well being of populations. The provisions outlines in Protocol I concerning environmental protection during armed conflicts are designed to address the direct threats that modern warfare poses to nature. A comparison between Articles 35 and 55 of Protocol I reveals that the legal principle articulated in Article 55 has a narrower scope, especially protecting civilian populations from the environmental consequences of hostilities. Instead, Art. 35 encompasses a more general legal principle applicable to any act of war[4].

The provision, which aims to prohibit the military or any other hostile use of means on the natural environment, is also contained in Art. 1 of the Environmental Modification Convention (hereinafter referred to as the ENMOD Convention[5]). This article stipulates that "each State party to this Convention is obliged not to resort to military or any other hostile use of means of influence on the environment, which have large-scale, long-term or serious consequences, as a means of destroying, causing damage to any other participating State"[6] This convention represents first contractual obligation that directly addresses the deliberate manipulation of the environment during hostilities (Roberts, 2000).

The Updated Statute of the International Criminal Tribunal in Article 45, titled "Causing Significant Damage to the Natural Environment", categorizes environmental destruction as both a tactic of war and as the consequence of employing methods and means of warfare designed to inflict substantial, enduring and serious damage to the environment[7]. International war crimes are a special phenomenon in international law, alongside the genocide, crimes against humanity, and the crime of aggression, constituting some of the serious transgressions recognized internationally. Delving deeper into the specifics of international war crimes against the environment, it is crucial to focus on their defining features, particularly on the objective aspect. This involves the need for the perpetrator to be cognizant of the possibility of causing significant, enduring, and serious

[2] ICRC: Environment. Database on International humanitarian law. Available online at: https://www.icrc.org/en/icrc-databases-international-humanitarian-law (accessed on 16 April 2024).
[3] Ibid.
[4] Additional Protocol to the Geneva Conventions of August 12, 1949, relating to the Protection of Victims of International Armed Conflicts (Protocol I) (1977). Available online at: https://zakon.rada.gov.ua/laws/show/995_199#Text (accessed on 16 April 2024).
[5] https://disarmament.unoda.org/enmod/
[6] On the prohibition of military or any hostile use of means of influence on the natural environment: Convention. 1977. Available online at: https://ips.ligazakon.net/document/MU77K02U (accessed on 16 April 2024).
[7] Updated Statute of the International Criminal Tribunal for the Former Yugoslavia of 2009. Available online at: https://www.icty.org/x/file/Legal%20Library/Statute/statute_sept09_en.pdf (accessed on 16 April 2024).

damage to the environment. Moreover, such damage must be disproportionate when weighed against the specific and immediate military advantage sought.

The destruction of the environment amid armed conflicts constitutes an international war crime, yet in practice, substantiating the presence of such crimes proves challenging. Despite the existence of legal safeguards aimed at protecting the environment from harm, these measures lack consistency and uniformity. Consequently, *de jure* most of the acts committed during hostilities lack the comprehensive features defining international war crimes against the environment, as outlines in the Rome Statute, Protocol I and the ENMOD Convention. But *de facto*, as a result of the armed conflict, significant damage is caused to the environment. However, in reality, armed conflicts result in significant environmental damage. Nevertheless, due to the stringent thresholds for violations, these illegal actions often fail to meet the criteria for qualification as an international war crimes against the environment (Sadova, 2023). This complicates efforts to hold responsible parties accountable under either national law or international law. Therefore, international war crimes against the environment are illegal acts defined by international criminal law, which involve the exploitation or damage of the environment or its constituent components occurring within the context of armed conflicts.

Modern international legal framework for holding individuals accountable for perpetrating international war crimes against the environment exhibits the following characteristics: they violate the norms of international humanitarian law; the illegal act is committed amid an international armed conflict; the consequences of the crime must adhere to the principle of proportionality concerning military advantage; and the environmental damage must be significant in scale, duration and/or severity.

While consolidating conclusions regarding the composition of international war crimes against the environment in accordance with the Rome Statute, it is observed that the primary direct targets of these unlawful acts are the laws of war, constituting a body of international regulations dictating permissible conduct during armed conflict. An ancillary target is the environment, synonymous with the broader concept of environment. It consists of the natural environment, evolving through the Earth's history and vital for societal existence and development, as well as the artificial environment crafted by human activity in advancing economic infrastructure (Sadova, 2023). The essential features of the objective aspect of international crimes against the environment include a socially risky act in the form of active conduct by the perpetrator and the possibility of criminal repercussions. Additional criteria for the objective side of such illegal acts include a situation characterized by the mandatory presence of an armed conflict, with the means of committing international war crimes against the environment are not explicitly detailed in the Rome Statute. However, the notion of "means of impacting the natural environment" is addressed in the ENMOD Convention, signaling a potential avenue for advancing the concept of international war crimes against the environment. Based on this, any methods aimed at altering the dynamics, composition, or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, as well as outer space. The locus of commission for an international war crime against the environment is a defined territory embroiled in hostilities, weaponry serving as a potential instrument.

According to Art. 26 of the Rome Statute, any convicted natural person aged 18 or above can be held accountable as the general perpetrator of international war crimes against the environment.[8] However, as for the specific perpetrator, combatants can be deemed as the special subject. The primary feature of the subjective aspect is the presence of culpability, which can manifest in various forms, including intent, direct or indirect, or through negligence, particularly in cases involving commanders. Additional features of the subjective aspect may consist of a purpose and a motive. The purpose of an international war crime against the environment might involve the deliberate intent to inflict a significant environmental damage to gain a military advantage.

At the same time, international war crimes against the environment must be distinguished from related offenses linked environmental harm. While these crimes possess distinctive features, they also share similarities, which could lead to misclassification. Hence, it is imperative to establish a clear distinction between international war crimes against the environment. This differentiation is crucial for formulating recommendations on their inclusion in the Rome Statute, enabling the International Criminal Court to potentially prosecute individuals responsible for committing an international war crime against the environment (Sadova, 2021) in the future.

International Responsibility for the Crime of Ecocide

The destruction of our environment, or oikos, stands as one of the foremost global perils (Darryl, 2022). The destruction of forests, steppes and wetlands due to mining activities, bombings, shelling, fires, and pollution constitutes “ecocide” (Mamedov *et al.*, 2024). In theory, ecocide represents a fitting legal response to the pressing global environmental challenges. However, practical and philosophical intricacies surrounding the substantive elements of the crime present formidable challenges for both international law as a whole, and international criminal law in particular, casting uncertainty on the feasibility of its implementation (Mwanza, 2018).

In this part of this article, the authors aim to investigate the crime of ecocide, the genesis of this category of crimes, its features, and its place in the system of international criminal law.

The statute of the International Criminal Court provides for the accountability for war crimes, encompassing an intentional targeting of attacks with the knowledge that they will result in significant, lasting and severe harm to the surrounding natural environment, a consequence clearly disproportionate to any specific and immediately anticipated military gain.[9]

Article 55 of Additional Protocol I to the Geneva Conventions, addressing the protection of victims of international armed conflicts, emphasizes the imperative of "protecting the natural environment" from extensive, long-term and serious damage during military engagements. This obligation includes the prohibition of employing warfare methods or means aimed at causing, or likely to cause such environmental damage, thereby,

[8] Rome Statute of the International Criminal Court. (1998). Available online at: https://www.icc-cpi.int/sites/default/files/RS-Eng.pdf (accessed on 16 April 2024).
[9] Ibid.

jeopardizing the health or survival of the affected populations.[10] It should be noted that these provisions address specific instances of environmental harm during armed conflicts but have limited effectiveness. Consequently, the idea of expanding the scope of international crimes by incorporating "Ecocide", a concept not universally acknowledged in international legal doctrine, and sometimes construed as a facet of genocide by certain scholars, has been gained traction (Machlis and Hanson, 2008).

The idea of creating an international crime of "ecocide" is not a new concept, as it dates back to the 1970s. This idea originally arose during the Vietnam War, when the US military infamously deployed Agent Orange, a toxic herbicide, as a chemical weapon (Zierler, 2011). The term “ecocide” was first introduced publicly by plant biologist Arthur Galston, who described it as the deliberate and irreversible destruction of an environment essential for human habitation in line with their choosen way of life.[11] On an official platform, the term ecocide was first used by Swedish Prime Minister, U. Palme, in 1972 during a conference on "War and National Responsibility". Ecocide was conceptualized to encompass various forms of devastation and destruction targeted at damaging or destroying the ecology of specific geographical areas, thereby, posing threats to human, animal and plant life.[12] However, despite its discussion, the official final document of the Stockholm Conference did not include any reference to ecocide.

Subsequently, R. Falkom not only formulated the concept of "ecocide" but also advocated for the adoption of a relevant convention. In particular, in Article Draft II of the International Convention on the Crime of Ecocide, ecocide was declared as any deliberate act committed with the aim of destroying or destroying, wholly or partially, a human ecosystem (Falk, 1973). Despite these efforts, the convention failed to materialize, though the concept persisted. It is worth noting a limitation of the proposed initiative: ecocide was initially framed solely within the context of wartime atrocities, disregarding the potential dangers of such actions during peacetime. Subsequently, a proposal to include ecocide in the Rome Statute of the International Criminal Court alongside international crimes (genocide, crimes against humanity, war crimes) was considered, but it also did not receive support (Rybacki, 2021).

The crime of ecocide, akin to any international crime, violates the collective interests of the global community, imperils the peace and security of mankind, and profoundly shocks the consciousness of mankind. The scope of international environmental security tends to be primary objective of ecocide. The focal point of ecocide's criminality is the environment. Hence, the scope of crime of ecocide should extend to encompass hybrid entities – those resulting from cooperation between man and nature – including reservoirs, canals, forest plantations, modified landscapes tailored to human needs, botanical, dendrological, and zoological parks. Together, these components constitute the environmental system.

[10] Additional Protocol to the Geneva Conventions of August 12, 1949, relating to the Protection of Victims of International Armed Conflicts (Protocol I) (1977). Available online at: https://zakon.rada.gov.ua/laws/show/995_199#Text (accessed on 16 April 2024).
[11] Draft Code of Offences Against the Peace and Security of Mankind (1954) in ILC, Yearbook of the International Law Commission: Vol. II (1954).
[12] Ecocide law. Available online at: https://ecocidelaw.com/history (accessed on 16 April 2024).

The objective side of the crime involves the deliberate perpetuation of unlawful or senseless actions that carry a high probability of causing serious and widespread or long-term damage to the environment. "Recklessness" refers to disregard so heedless that it ignores the potential harm, which would clearly outweigh any expected benefits. Proportionality stands as a fundamental principle of international law. Certain actions are recognized as proportionate only when they are sufficient to achieve the intended goal without exceeding what is necessary. As T. Hartley rightly noted, the means chosen to accomplish a goal must balance the benefits against any damage inflicted on affected parties, ensuring that the damage remains proportional to the public interest served (Hartley, 2014).

Similar proportionality criteria are evident in the Rome Statute, notably in Article 8(2)(b)(iv), which designates as a war crime the intentional attack with knowledge that such an attack would cause significant, long-term and serious damage to the surrounding natural environment, a consequence blatantly disproportionate to any specific and immediately anticipated military advantage.[13] Similarly, the term "senseless" implies a disregard for harm that would unmistakably outweigh expected social and economic benefits.

It is noteworthy that international environmental law includes relatively few absolute prohibitions, delegating to individual States the responsibility of defining criminal offenses through national legislation. Several States have enacted laws that criminalized the ecocide. It is expedient, drawing analogy with Article 441 of the Criminal Code of Ukraine)[14], to classify acts such as mass destruction of plant or animal life, poisoning of the atmosphere or water resources, as well as committing other actions to precipitate an ecological disaster, as criminal offenses.

A characteristic of this crime is that it is completed at the moment of creating a dangerous circumstance, rather than upon the realization of its consequences. It involves undertaking actions with the knowledge that they possess a significant potential to inflict serious, widespread, or long-term harm. On the objective front, the crime can manifest in various forms: mass damage of ecosystems through the mass destruction of flora and fauna, or the proliferation of epizootics and epiphytotics, pollution or clogging of the atmosphere, water resources, soils, and failure to adhere to measures for subsoil protection, and the preparation of other actions with the potential to trigger an environmental disaster.

As for the nature of environmental damage, which is a hallmark of ecocide, there exists no comprehensive definition; however, it must be substantial, widespread, and long-term. "Serious" harm denotes serious, adverse change, disturbance, or damage to any environmental component, including serious impact on human life or natural, cultural or economic resources. "Widespread" damage extends beyond a limited geographic area, traverses transboundary, or affects entire ecosystems or a significant population. "Long-

[13] Rome Statute of the International Criminal Court. (1998). Available online at: https://www.icc-cpi.int/sites/default/files/RS-Eng.pdf (accessed on 16 April 2024).
[14] Criminal Code of Ukraine. Law of Ukraine. (2001). No. 2341-III. Available online at: https://zakon.rada.gov.ua/laws/show/2341-14#Text (accessed on 16 April 2024).

term" harm implies damage that is irreversible or incapable of natural recovery within a reasonable timeframe.

An ecological disaster's impact is distinct, requiring individual assessment to gauge its severity. Factors such as irreversible ecosystem changes, prolonged restoration periods, expansive affected territories, or cross-border ramifications must be considered. These damages lack clear indicators, necessitating detailed legal provisions to accurately classify ecocide. Law enforcement must account for objective circumstances to ensure proper interpretation and prosecution.

It is crucial to recognize that amending the Rome Statute of the International Criminal Court would not occur swiftly, demanding thorough scientific and theoretical analysis for justification. In addition, the intricate and protracted process of altering the statute of the International Criminal Court adds further complexity. The impetus for incorporating ecocide into the jurisdiction of the International Criminal Court could stem from array of environmental crimes perpetrated by the Russian Federation in Ukraine, collectively labeled as "ecocide".

Modern scientists and practitioners have repeatedly drawn attention to the inadequacy of the current international legal framework in combating ecocide. They argue for the development of new instruments to protect the rights of future generations and nature itself (Merz, 2014). While environmental crimes might be categorized as serious crimes under national legislation, they often lack recognition as such under international law, except within the limited jurisdiction of the International Criminal Court for environmental crimes (Pereira, 2020).

Challenges arise in holding a terrorist State accountable for the ecocide in Ukraine before the International Criminal Court, as these criminal actions fall beyond its jurisdiction. In addition, the terrorist State's withdrawal from the Rome Statute in 2016, indicating preparation for a full-scale invasion and warfare through terrorist means, further complicates matters by exempting it from the Court's obligations. Additionally, amendments to its national legislation, disavows recognition of the decisions made by international judicial bodies. It becomes apparent that establishing dedicated international human rights tribunal capable of addressing ecocide-related cases is obvious.

The process of amending the Rome Statute of the International Criminal Court is not a swift one; it entails a significant scientific and theoretical scrutiny. Moreover, it is rather complicated and lengthy procedure for making changes to the statute of the International Criminal Court. The catalyst for incorporating ecocide into the jurisdiction of the International Criminal Court stems from the numerous environmental crimes committed by the Russian Federation in Ukraine, collectively termed as "ecocide". In addition, given the openness of reparation, judges can facilitate ecocentric and transformative measures despite the anthropocentric norms, directly impacting environmental restoration, protection, and ecological consciousness. While this prospect lies in the distant future, the considerable potential of ecocide reparations presents a compelling argument for expediting the legislation of the crime (Langmack, 2021).

The System of International Bodies and Institutions in Combating Environmental Crime

Environmental crime and illegal circulation of waste pose a significant threats to both the environment and public health, often transcending national borders. Environmental crime is one of the most profitable organized criminal activities in the world; and it affects not only the environment, but also society and the economy as a whole. Addressing cross-border criminal activities is a paramount concern for interstate cooperation aimed at bolstering security. Consequently, a coordinated response involving law enforcement agencies, specialized international institutions and structures is imperative.

In this part of the work, international institutional basis of the universal and regional levels in the field of combating crime against the environment will be examined.

The largest volume of work fighting against international crime is carried out by the International Criminal Police Organization (Interpol). Within Interpol, specialized auxiliary units have been created to tackle these issues comprehensively. These units include: the Working Group on Combating Pollution, the Working Group on Crimes against Wildlife, the Interpol Working Group on Crimes Against Forestry, and Interpol Working Group on Crimes Against Fish. Comprising seasoned law enforcement experts representing Interpol member states, each of these groups collaborates closely to counter the activities of transnational organized criminal entities involved in environmental crimes. This concerted effort involves extensive cooperation with governmental, non-governmental and international organizations to effectively curb such illicit activities.[15]

Interpol is active in combating environmental crime. Interpol has a unique opportunity to facilitate cross-border law enforcement activities and assist countries in gathering evidence, identifying criminals and their assets. Moreover, Interpol has devised a number of tools tailored to combat wildlife and forest crimes. With 195 member states, most of which have established national central bureaus, Interpol serves as a hub for cooperation. These national central bureaus not only liaise with Interpol's General Secretariat but also serve as vital links between national wildlife and forest units and Interpol, enhancing collaboration and coordination in tackling environmental offenses[16].

National task forces on environmental security (hereinafter referred to as NEST) also play a significant role in combating environmental crimes. NEST is a national multidisciplinary group of experts from various national agencies, including the police, customs, environmental protection authorities, prosecutors and other specialized agencies, working together to support national environmental security and combat environmental crime. NEST aims to unite law enforcement agencies and their specialized expertise towards common goal, including mitigating pollution, conserving biodiversity, and protecting other natural resources. NEST can be formed independently

[15] Environmental crime partnerships. Available online at: https://www.interpol.int/Crimes/Environmental-crime/Environmental-crime-partnerships (accessed on 16 April 2024).

[16] Wildlife and Forest Crime Analytic Toolkit: revised edition. United Nations Office on Drugs and Crime. Vienna, New York, (2012). 196 p. Available online at: https://www.cms.int/sites/default/files/document/unep_cms_mikt2_BernSFPs_Inf-7a_ICCWC-Analytic-Toolkit.pdf (accessed on 16 April 2024).

or with the support of existing target groups within the country, potentially finding a home within an Interpol National Central Bureau of a Member State.

NEST allows collaboration between law enforcement agencies and scientific experts, whose knowledge and resources are indispensable in combating environmental crimes. By harnessing the strengths of each participating agency, NEST addresses environmental offenses comprehensively, ranging from on-the-ground illegal poaching activities to delving into the financial and tax affairs of criminal syndicates.[17]

Interpol offers an array of tools and services to aid countries in combating environmental crimes. Among these is the I-24/7 System, a secure global communications system connecting law enforcement officers from 195 participating states. This system not only facilitates the confidential sharing of information but also grants access to select Interpol databases, including messages such as requests for cooperation or specific alerts. As part of its environmental security activities, Interpol uses, in particular, various notices and messages, including red notices for locating and arresting wanted persons, blue notices and messages for gathering information on persons or establishing their whereabouts, purple messages typically used to find or provide information on a specific modus operandi, and eco-messages – a standardized format for reporting incidents or confiscations. This unified intelligence and data reporting system streamlines collaboration among different law enforcement agencies, fostering information analysis and overcoming language and communication barriers. Additionally, Regional Investigative and Analytical Councils (RIACs) convene national law enforcement agencies to collectively analyze information and intelligence on important cases and achieve investigative results. Investigative support teams (ISTs), specialized Interpol units, offer support to national authorities in specific cases to investigate environmental crimes by sharing experience on detection and prevention methods. Furthermore, Interpol coordinates operations encompassing regional and global response measures aimed at dismantling criminal networks, exchanging information and intelligence, forming multidisciplinary teams to fight environmental crimes, enhancing international law enforcement capacity, and raising awareness on environmental crime prevention.[18]

The International Consortium on Combating Wildlife Crime (ICCWC)[19] represents a collaborative effort among five intergovernmental organizations. These include the Secretariat of the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Interpol, the United Nations Office on Drugs and Crime, the World Bank and the World Customs Organization. ICCWC's mission is to strengthen criminal justice systems and provide coordinated support at the national, regional and international levels to combat wildlife and forest crimes. The ICCWC's approach aims to mobilize various tools and services to build the long-term capacity of national wildlife law enforcement agencies to effectively combat wildlife crime. The

[17] INTERPOL: Our response to environmental crime. Available online at: https://www.interpol.int/Crimes/Environmental-crime/Our-response-to-environmental-crime (accessed on 16 April 2024).

[18] INTERPOL-UN Environment. Strategic Report: Environment, Peace and Security – A Convergence of Threats. INTERPOL, UN Environment (2016), 76 p. Available online at: https://wedocs.unep.org/bitstream/handle/20.500.11822/17008/environment_peace_security.pdf?sequence=1&amp%3Bis-Allowed (accessed on 16 April 2024).

[19] ICCWC – International Consortium on Combating Wildlife Crime. Available online at: https://cites.org/eng/prog/iccwc (accessed on 16 April 2024).

oversight of Consortium's activities is conducted by its Senior Expert Group (SEG), comprising representatives from each of five partner organizations. The SEG establishes priorities, decides on support initiatives, and monitors the overall effectiveness of implementation efforts.

Several organizational frameworks within direction of European Union focus on this endeavour. Foremost among them is the European Union Agency for Law Enforcement Cooperation (Europol)[20], tasked with providing operational support to law enforcement agencies of the European Union round the clock. This support is provided to various sub-agency areas and cases spanning multiple criminal spheres. Europol supports investigations initiated by Member States, particularly addressing crimes necessitating international collaboration both within and outside the EU. Notable among these are terrorism, international drug trafficking, money laundering, organized fraud, forgery of euros, human trafficking, environmental crimes, and others. Europol supports the implementation of operational measures against these offences.

The European Multidisciplinary Platform against Criminal Threats (EMPACT) determines the priority crimes to address, employing a well-defined methodology for setting, executing, and assessing priorities in combating organized and serious international crime. Notably, environmental crime emerges as a key priority area for the EU under the EMPACT 2022-2025 framework. The overarching objective is to destroy criminal networks involved in various forms of environmental crime, with a special emphasis on illicit trade in waste and wildlife. Additionally, efforts target criminal networks capable of penetrating high-level legal business structures or establishing their own companies to facilitate illegal crimes.[21]

One prominent regional institutions is the Task Force under the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora (LATF).[22] LATF, an intergovernmental organization, primarily facilitates joint activities between member states of the agreement to investigate violations of national laws relating to illegal trade in wildlife.

Non-governmental organizations play a significant role in combating environmental crime by disseminating information about such crimes and the resultant environmental damage. They also foster collective actions and engage the public in addressing existing issues. Notable among these organizations is Crime Stoppers International[23], a global non-profit organization dedicated to supporting law enforcement in crime prevention and resolution. It operates a platform allowing individuals to report crimes anonymously to law enforcement partners, collaborates with public and private partners to raise

[20] Regulation (EU) 2016/794 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Law Enforcement Cooperation (Europol) and replacing and repealing Council Decisions 2009/371/JHA, 2009/934/JHA, 2009/935/JHA, 2009/936/JHA and 2009/968/JHA // Official Journal of the European Union. 2016, L 135/53. pp. 1–62 (accessed on 16 April, 2024).

[21] EU Policy Cycle – EMPACT. Available online at: https://www.europol.europa.eu/crime-areas-andtrends/eu-policy-cycle-empact (accessed on 16 April 2024).

[22] Lusaka Agreement on Co-operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora Lusaka. (1994). Available online at: https://treaties.un.org/doc/Treaties/1996/12/19961210%2001-13%20PM/Ch_XXVII_11p.pdf (accessed on 16 April 2024).

[23] Crime Stoppers International. Available online at: https://www.crimestoppersinternational.org/area-of-focus (accessed on 16 April 2024).

awareness about the effects of crime, and initiates projects aimed at detecting and reducing crimes worldwide. Comprising distinguished experts in law enforcement, governance and development, this organization continuously seeks innovative strategies and measures to combat organized crimes.[24]

The Environmental Crime Network (EnviCrimeNet) functions as an informal network of police, enforcement officers and other environmental crime combatants. EnviCrimeNet is also referred to as the European Center of Excellence for Criminal Cases in this domain. EnviCrimeNet aims to foster activities aimed at engaging participants in the prosecution of environmental crimes. It also serves as a platform for sharing best practices and lessons learned from previous experiences. EnviCrimeNet also operates outside the EU.[25] The experiences gained during the work of the Network are leveraged to export this model to other regions with a high impact of comabting environmental crimes, such as in Africa or Latin America, thereby promoting exchange and fostering synergies.

Peculiarities of Combating Crimes against the Environment in Ukrainian Realities

Article 16 of the Constitution of Ukraine mandates the State to ensure ecological safety and maintain ecological balance within the country. Everyone is entitled to safe and healthy environment and has right to seek compensation for any damage caused by the violation of this right. The Constitution also obliges all citizens to protect nature and its resources. Upholding this constitutional duty is essential for the well-being of the nation.[26]

Ukraine can be considered an innovator in the investigation of criminal offenses against the environment at the national and international levels, as it became the first country to start investigating ecocide in the context of armed conflict. It is important for Ukraine that the large-scale long-term consequences of war crimes against the environment are recognized by the world community. However, it is evident that merely defining ecocide in the Criminal Law will not enable Ukraine to receive reparations from the aggressor country for the restoration of the Ukrainian state. Effective international mechanisms are necessary to counter this negative phenomenon, which has a global impact. The development of effective prosecution mechanisms for criminal offenses against the environment, particularly through the expansion of international responsibility for environmental damage and the establishment of cooperation in prosecuting these crimes, is a crucial step towards preserving the environment. This also ensures the safety and health of current and future generations.

The need to improve legislation is crucial for Ukraine and other countries experiencing conflict, but also for global community. It is essential for the international community to develop a clear understanding of legal norms dedicated to environmental crimes, taking into account the fact that environmental damage often transcends national borders.

[24] Global initiative. Available online at: https://globalinitiative.net/ (accessed on 16 April 2024).
[25] EnviCrimeNet. Available online at: https://www.envicrimenet.eu (accessed on 16 April 2024).
[26] Constitution of Ukraine. Law of Ukraine. (1996). No. 254к/96-вр Available online at: https://zakon.rada.gov.ua/laws/show/254к/96-вр#Text (accessed on 16 April 2024).

Reflecting on the possibility of international justice in environmental crimes, it is important to note that its functioning is carried out within the framework of the Rome Statute, which defines genocide, crimes against humanity, war crimes, and crimes of aggression. On the other hand, the statute does not mention ecocide; Article 8 only refers to intentional attacks where the perpetrator knew it would result in lasting, foreseeable harm.[27] Therefore, crimes related to environmental pollution, ecosystem depletion, and climate change remain outside the jurisdiction of the International Criminal Court. Furthermore, there are no decisions from this court or other criminal tribunals addressing environmental damage. Instead, representatives of the legal community present convincing arguments for establishing a special tribunal to prosecute those involved in ecocide during armed conflicts (Ovchinnikov, 2023).

It is essential to understand the inevitability of punishing the aggressor country for environmental damage. In the face of climate crisis and widespread biodiversity extinction, Ukraine must utilize all available tools, including legislative measures, to achieve global systemic changes for ecosystem protection and restoration. Eefforts to develop a universally accepted definition of "ecocide" and its potential inclusion in a new European Union directive are crucial. Additionally, the Rome Statute should be amended to include ecocide as a war crime. These measures will have a preventive effect on the behavior of parties in future armed conflicts, ensuring that they cannot avoid responsibility for committing such illegal actions and must compensate for environmental damage. It is important to understand that the absence of a definition for ecocide does not diminish the potential for justice that Ukraine seeks in environmental protection. However, the lack of an established institution at the international level prevents initiation of legal proceedings for ecocide based on the data collected in Ukraine due to military actions.

Regarding sentencing in absentia in such proceedings, we believe that this approach can create additional pressure on war criminals. Specifically, the court's decision can be shared with all international bodies to ensure that the sentence is delivered to the detained convict in the relevant country and to initiate the procedure for its execution. Additionally, the availability of such information can inform the internal procedures of each country. In addition, Ukraine may demand the execution of the sentence or the extradition of the convicted person (Sokolova, 2023).

We believe that verdicts in absentia for war crimes, especially those against the environment, should become a crucial component in establishing Ukraine’s position at the International Criminal Court. These verdicts set a precedent for investigating such crimes during wartime. Equally important is the practical aspect of collecting data and evidence, documenting the damage, and providing reliable information on the state of the environment before the full-scale invasion. This effort requires expert, technical, organizational, financial, and other support from international partners.

In addition, various organizational factors that influence the difficulty of determining the environmental damage resulting from the terrorist actions of the Russian Federation. These factors include the extensive area of damage, affecting multiple types of natural

[27] Rome Statute of the International Criminal Court. (1998). Available online at: https://www.icc-cpi.int/sites/default/files/RS-Eng.pdf (accessed on 16 April 2024).

resources such as soils, subsoil, water bodies, atmospheric air, flora and fauna, as well as territories and objects of the nature reserve fund. The interconnectedness of natural resources leads to the spread of environmental damage beyond the immediate combat zone. Furthermore, the damage inflicted upon the surrounding natural environment extends beyond Ukraine's borders, illustrating its interregional nature. Moreover, the long-term effects of environmental damage make it challenging to determine clear restoration timelines, and the consequences of environmental terrorism may persist indefinitely. Compounding these challenges is the difficulty in fully documenting the scope of negative impacts on the natural environment due to existing dangers. Some scientists argue that these factors should serve as the foundation for developing legal terminology aimed at ensuring comprehensive compensation for environmental damage caused by the aggressor country (Kyrieieva, 2023).

To systematically document and organize information concerning the environmental damage resulting from the invasion of the Russian Federation into the territory of Ukraine to facilitate compensation procedures, the State Environmental Inspection of Ukraine established the Operational Headquarters for the formation of a comprehensive damage registry on March 1, 2022.[28] Despite absence of specific charges against the Russian Federation for ecocide, Ukrainian law enforcement agencies must diligently pursue individuals directly guilty for the crime of ecocide under Art. 441 of the Criminal Code of Ukraine. This proactive approach will strengthen Ukraine's position in international courts, given the Russian Federation's contravention of numerous international agreements on environmental protection. Additionally, in March 2022, the Prosecutor of the International Criminal Court began an investigation into the allegations of genocide, war crimes and crimes against humanity in Ukraine, spanning any part of the country since November 21, 2013.[29] It is understood that this investigation will encompass environmental crimes within the scope of war crimes.

A persistent challenge in prosecuting environmental crimes is the lack of sophisticated scientific/forensic evidence gathering mechanisms, especially in developing economies, which are often the hardest hit by environmental damage. With the inclusion of ecocide in the Rome Statute, the International Criminal Court could deploy its scientific and forensic expertise to assist in evidence collection, even though domestic partnerships, facilitating knowledge and technology transfer. This approach would enable local organizations to gather data more effectively and swiftly to identify environmental damage using sophisticated technology. Recent proposals to enhance evidence collection mechanisms at the International Criminal Court would further streamline investigations, ultimately reducing the prosecutorial burden in the long run (Srivastava, 2022).

One of the main platforms facilitating the collection of evidence on the ecological impact of the war in Ukraine is the official special resource managed by the Ministry of Environmental Protection. In addition to this resource, there are other tools available for

[28] About the creation of an operational headquarters for recording, organizing information and forming a single register of damages caused to the environment as a result of the invasion of the Russian Federation on the territory of Ukraine. Order (2022) No. 73. Available online at: https://www.dei.gov.ua/post/2243 (accessed on 16 April, 2024).

[29] International Criminal Court. Ukraine Situation in Ukraine ICC-01/22. Available online at: https://www.icc-cpi.int/situations/ukraine (accessed on 16 April 2024).

collecting relevant data.[30] Experts emphasize the importance of integrating considerations of environmental damage into the mandate and procedures of all international bodies and mechanisms (Ovchinnikov, 2023). Currently, Ukraine is in the process of developing internal eligibility criteria for registering claims with the International Register of Damages. This register constitutes one of the three components of the forthcoming International Compensation Mechanism, which will also encompass the International Compensation Fund and the International Compensation Commission.

Establishing effective supranational mechanisms is imperative to hold the responsible parties accountable and provide compensation for environmental damage. Given the ecological disaster resulting from the destructive methods of warfare against Ukraine, expert calls for international solidarity in addressing global environmental crises and the large-scale ecocide in Ukraine are pertinent. This solidarity should mirror the support provided in terms of weapons and finances, highlighting the urgency of collective action to address environmental challenges on a global scale.

Conclusion

The crime of ecocide should be recognized as the gravest international crime, posing a direct threat to international environmental security and endangering the very existence of humanity. Within the framework of advancing international law for environmental protection, the various environmentally destructive acts perpetrated by the Russian Federation in Ukraine, exhibiting clear signs of ecocide, underscore and indicate necessity of incorporating the crime of ecocide into the Rome Statute of the International Criminal Court. Furthermore, it is evident that establishing a dedicated international human rights tribunal is mandatory to effectively address cases involving ecocide.

At the international level, numberous bodies, programs, and networks have been established to combat environmental crimes, which is characterized by its transnational character. These include the International Criminal Police Organization (Interpol), International Consortium to Combat Wildlife Crime (ICCWC), European Union Agency for Law Enforcement Cooperation (Europol), European Multidisciplinary Platform against Criminal Threats (EMPACT), Environmental Crime Network (EnviCrimeNet), and the Task Force under the Lusaka Agreement on Joint Law Enforcement Operations against Illegal Trade in Wildlife (LATF). The functioning of these organizations promote the exchange of experience in combating environmental crimes and the development of international cooperation in this area. One of the main problems in combating crime against the environment is that much of it goes undetected due to the secrecy involved and the ineffectiveness of some law enforcement agencies. Addressing this issue requires a comprehensive approach to international cooperation that considers modern challenges and threats.

Non-governmental, non-commercial public institutions, including Crime Stoppers International, the Global Initiative, and Hivos, also make significant contributions to combating environmental crime. They help contribute to the detection and reduction of

[30] Advantages, challenges and limitations of the criminalization of ecocide at the international level. (2023). Available online at: http://epl.org.ua/announces/perevagy-vyklyky-i-obmezhennya-kryminalizatsiyi-ekotsydu-na-mizhnarodnomu-rivni (accessed on 16 April 2024).

crime in this area by informing the public about the negative consequences of crimes against the environment and human life, and by developing relevant projects. Interpol's activities to fight environmental crime are based on an extensive institutional system, which includes the Environmental Security Program (ENS) and the Environmental Protection and Compliance Committee (ECEC). Key areas of focus include crimes related to the loss of biodiversity and natural resources, as well as crimes related to pollution and climate change.

The actions of a terrorist country aimed at the deliberate destruction of environmental objects through damage to natural resources and critical infrastructure fall under the definitions of such environmental terrorism and ecocide. These actions extend beyond national legislation because they target universally recognized values and are related to genocide as a crime against humanity, as recognized by the International Criminal Court. Furthermore, the consequences of such actions on natural environment are not limited to the territory of a single country.

The environmental damage inflicted is significant, with the exact recording complicated by its scale, unpredictable consequences, and the long-term nature of military aggression, making it dangerous to document. Therefore, it is advisable to establish an effective system for monitoring environment conditions and quantifying the damage. Ukraine should also take measures to ensure compensation for environmental damage resulting from the environmental terrorism by the aggressor country. This includes developing legal terminology to define environmental damage caused by military aggression and methods for assessing the impact of terrorist actions on individual natural resource. Political and economic levers based on international law norms should be applied to secure compensation for the environmental damage caused by the occupying country. In addition, Ukraine's National Post-War Recovery Plan should include measures to restore and preserve ecosystems. Appropriate mechanisms should be universal and effectively prevent environmental crimes worldwide, and be reflected in relevant resolutions of the UN General Assembly and other international legal documents.

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Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

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Contributed to data analysis & interpretation	Yes	No	No	Yes	Yes
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