Forum: Environmental Committee (EC)

Issue: Estimating the environmental impacts of the war in Ukraine

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INTRODUCTION

Russia's invasion of Ukraine, which was launched on February 24, 2022, has had disastrous effects on all aspects of the lives of people affected. These are widely calculated in terms of human, economic and social cost, while the effects of this war on the environment are often forgotten. Although Ukraine occupies only 6% of Europe's landmass, it houses around 35% of its biodiversity, which is increasingly destroyed and polluted as a direct consequence of the invasion. It is of utmost importance to accurately estimate these environmental impacts, as it is integral in the progress of holding those accountable, who brought on this destruction. Furthermore, it will be key in reconstruction and greener rebuilding, which must be undertaken in the future.

DEFINITION OF KEY-TERMS

Ecocide

"The destruction of large areas of the natural environment as a consequence of human activity" [1]

Fine particulate matter

"Fine Particulate Matter refers to tiny particles in the air with a diameter of 2.5 micrometers or less, which can have harmful effects on human health" [2]

Fossil fuel

"Fuels, such as gas, coal, and oil, that were formed underground from plant and animal remains millions of years ago" [3]

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[1] "Definition of ECOCIDE." Www.merriam-Webster.com, www.merriam-webster.com/dictionary/ecocide.

[2] "Fine Particulate Matter - an Overview | ScienceDirect Topics." Www.sciencedirect.com, www.sciencedirect.com/topics/earth-and-planetary-sciences/fine-particulate-matter.

[3] "FOSSIL FUEL | Meaning in the Cambridge English Dictionary." Cambridge.org, 2019, https://dictionary.cambridge.org/dictionary/english/fossil-fuel.

Non-biodegradable

"a kind of substance which cannot be broken down by natural organisms and acts as a source of pollution" [4]

Unexploded ordnance

"Explosive weapons that did not explode when they were employed and still pose a risk of detonation, sometimes many decades after they were used or discarded" [5]

Leaching

"The removal of a material from a substance, such as soil or rock, through the percolation of water" [6]

Greenhouse gases

"Gases in the earth's atmosphere that trap heat." [7]

Carbon dioxide equivalent

"A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential" [8]

Endemic

"An organism that is restricted or peculiar to a locality or region" [9]

Ionizing radiation

"A type of energy released by atoms in the form of electromagnetic waves or particles. Acute health effects such as skin burns, or acute radiation syndrome can occur when doses of radiation exceed very high levels." [10]

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[4] "Biodegradable and Non-Biodegradable - Definition, Examples & Treatment." BYJUS, https://byjus.com/chemistry/biodegradable-and-non-biodegradable/#:~:text=A%20Non%2DBiodegradable%20material%20can.

[5] "Unexploded Ordnance." United States Department of State, www.state.gov/subjects/unexploded-ordnance/. Accessed 16 July 2024.

[6] "Definition of Leaching | Dictionary.com." www.dictionary.com, www.dictionary.com/browse/leaching.

[7] National Grid. "What Are Greenhouse Gases? | National Grid Group." Www.nationalgrid.com, National Grid, 23 Feb. 2023, www.nationalgrid.com/stories/energy-explained/what-are-greenhouse-gases.

[8] "Carbon Dioxide Equivalent — European Environment Agency." Www.eea.europa.eu, www.eea.europa.eu/help/glossary/eea-glossary/carbon-dioxide-equivalent.

[9] Merriam-Webster. "Definition of ENDEMIC." Merriam-Webster.com, 2019, www.merriam-webster.com/dictionary/endemic.

10WHO. "Ionizing Radiation and Health Effects." Www.who.int, 27 July 2023, www.who.int/news-room/fact-sheets/detail/ionizing-radiation-and-health-effects.

Soil erosion

"A gradual process that occurs when the impact of water or wind detaches and removes soil particles, causing the soil to deteriorate" [11]

Desertification

"The process by which natural or human causes reduce the biological productivity of drylands" [12]

BACKGROUND INFORMATION

Background on the conflict

After the dissolution of the Soviet Union (USSR) in 1991 Ukraine emerged as an independent state with close ties to the Russian Federation. In 1994 they acceded to the "Treaty on the Non-Proliferation of nuclear weapons" as a non-nuclear-weapon state and removed or dismantled all former Soviet Nuclear warheads stationed in Ukraine. In turn, the country's territorial integrity and political independence was guaranteed by the United Kingdom, the United States and most importantly the Russian Federation (Russia).

After a major Russian military build-up on the border with Ukraine beginning in April 2021 and increased heavy fighting in the Donbass in early February 2022, on the 24 February 2022 a full-scale invasion was launched by Russia. The war wages on to the present and has been internationally condemned as an illegal war of aggression, while sanctions have been imposed on Russia and humanitarian and military aid has been provided to Ukraine. This invasion has brought on a humanitarian crisis with the number of military and civilian deaths being the highest in Europe since the Second World War. Additionally, millions of Ukrainians have been internally and externally displaced. The silent victim of this war is the biodiversity, the ecosystems, and the environment in Ukraine, while many describe the damage as an ecocide. As of 2024 Russia occupies about 20% of Ukraine's pre-war territory.

Air pollution

Air pollution has both increased and decreased as consequence of the war in Ukraine. Decreases occurred as many factories and construction sites had to close and as the usage of civilian vehicles declined sharply.

Major increases in air pollution in Ukraine can be attributed to a variety of factors. This includes wildfires, which break out and spread rapidly due to military operations and a lack in firefighters, which is a result of the general mobilization of the male population in the country. In

[11] Al-Kaisi, Mahdi. "Soil Erosion: An Agricultural Production Challenge | Integrated Crop Management." Iastate.edu, 24 July 2000, crops.extension.iastate.edu/encyclopedia/soil-erosion-agricultural-production-challenge.

[12] Rafferty, John P, and Stuart L Pimm. "Desertification | Ecology." Encyclopædia Britannica, 29 Jan. 2018, www.britannica.com/science/desertification.

2022, there were approximately 25 times more wildfires than in the year 2021[13], which resulted in 183,000 hectares of Ukrainian forest and plantations burning down between February 2022 and July 2023[14]. The smoke these fires release contains carbon monoxide, methane, nitrogen oxides and many other toxic substances. Exposure to these wildfire emissions is a "growing and important public health problem[15], while the fires themselves of course destroy the ecosystems they encounter and have detrimental effects on the biodiversity of the region.

Moreover, attacks on fuel storage and industrial facilities have a significant impact on the air quality. The destruction of 36 fuel storage facilities in the first 13 months of the war resulted in pollutants from the burning of 108,000 tons of oil, oil production and gasoline[16]. In attacks on industrial facilities in Ukraine, such as fertilizers or nitric acid plants, a wide array of toxic substances has been set free.

Bombing and the subsequent destruction of buildings contribute to air pollution in the affected areas of Ukraine. The bombings and the structural fires that result from it increase the concentration of fine particulate matter. Less than one month after the beginning of the full-scale invasion the concentration of fine particulate matter in Kyiv, the capital of Ukraine, was 27.8 times higher than the recommended guideline by the World Health Organization.[17] The destruction of buildings results in exposure to toxic residues from explosions, hazardous dust, and other toxic substances, such as alkaline dust, cement particles, glass, asbestos or lead.[18]

Lastly, the large-scale movement and transportation of military equipment such as tanks, artillery, armored vehicles, and trucks generate substantial amounts of dust and fossil-fuel emissions, which contribute to climate change.

Soil contamination

Another detrimental environmental impact of the war in Ukraine is the contamination of soils. Physical disturbances to the soil are caused by the excavation of networks of tunnels and trenches along the war's front, as well as Russian fortifications which span over 1000 km.

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[13] The Impact of Russia's War against Ukraine on Climate Security and Climate Action Independent Experts' Analysis. 2023.

[14] "War in UA Environmental Impact." Top Lead Projects, www.topleadprojects.com/environmental-project-main.

[15] Cascio, Wayne E. "Wildland Fire Smoke and Human Health." Science of the Total Environment, vol. 624, no. 1, 15 May 2018, pp. 586–595, www.sciencedirect.com/science/article/pii/S004896971733512X, https://doi.org/10.1016/j.scitotenv.2017.12.086.

[16] "War in UA Environmental Impact." Top Lead Projects, www.topleadprojects.com/environmental-project-main.

[17] Hryhorczuk, Daniel, et al. "The Environmental Health Impacts of Russia's War on Ukraine." Journal of Occupational Medicine & Toxicology, vol. 19, no. 1, 5 Jan. 2024, pp. 1–14, web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=9&sid=8efd9f9f-74eb-4067-bac6-77526ac8e970%40redis, https://doi.org/10.1186/s12995-023-00398-y. Accessed 12 Jan. 2024.

[18] UNEP. "The Toxic Legacy of the Ukraine War." UNEP, 22 Feb. 2023, www.unep.org/news-and-stories/story/toxic-legacy-ukraine-war.

Furthermore, soil is compacted by movement of troops with machinery, and a vast amount of land is marked by craters, brought about by explosives and tens of thousands of artillery rounds fired every day.

Further, soil is contaminated chemically. This occurs through ammunition; chemical spills following attacks on industrial facilities and waste sites or oil and lubricants spills. Many of the chemicals used in military ammunition are non-biodegradable and thus contaminate soil and affect human and ecosystem health for an exceptionally long time. The most persistent and frequent contaminants in war zones are heavy metals such as lead, antimony, chromium, arsenic, mercury, nickel, zinc, cadmium, and copper.

As a result of the war around 30% of Ukraine's territory is covered by landmines. This area covers about 174,000 square kilometers in eleven of the 27 Ukrainian regions. Additionally, another third of Ukraine's landmass is contaminated by unexploded ordnance which includes artillery shells, grenades, mortar shells, cluster munitions, rockets, missiles, and improvised explosive devices[19]. These munitions often have high failure rates and could explode unpredictably in the future. The process of clearing the landmines and unexploded ordnances could take up to 50 years[20] and cost more than $37 billion[21].

Water pollution

The coastal and marine environment as well as rivers and the water infrastructure of Ukraine have fell victim to the war in several diverse ways. Freshwater resources in the country have been chemically polluted by the dumping and decomposition of ammunition, war equipment and explosive residue, and indirectly by damage to industrial facilities[22]. The leaching of explosive residue and other toxic substances from soil has contaminated the groundwater in Ukraine, which meets a quarter of the drinking water need of its people[23].

War directly or indirectly damages the water infrastructure in the nation too. Ukraine's Ministry of Environmental Protection and Natural Resources has documented that as of July 2023; 724 hydraulic structures, 71 water pumping stations, 64 sewage pumping stations, and 23 water

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[19] "Ukraine Faces the Deadly Threat of Land Mines as Russians Retreat." Reuters, 28 July 2023, www.reuters.com/graphics/UKRAINE-CRISIS/LANDMINES/myvmgnqbavr/index.html.

[20] Brown, Steve. "Landmines and Explosive Remnants of War in Ukraine Will Take Decades to Clear." Kyiv Post, 18 Mar. 2023, www.kyivpost.com/post/14439.

[21] "Search Results | 1 UN News." News.un.org, 8 July 2023, news.un.org/en/search/alexander%20lobov. Accessed 15 July 2024.

[22] Shumilova, Oleksandra, et al. "Impact of the Russia–Ukraine Armed Conflict on Water Resources and Water Infrastructure." Nature Sustainability, vol. 6, 2 Mar. 2023, pp. 1–9, www.nature.com/articles/s41893-023-01068-x , https://doi.org/10.1038/s41893-023-01068-x.

[23] "Ukraine Conflict Environmental Briefing: The Coastal and Marine Environment." CEOBS, 1 Feb. 2023, ceobs.org/ukraine-conflict-environmental-briefing-the-coastal-and-marine-environment/.

treatment facilities had been destroyed[24], resulting in 20.7 billion cubic meters of wastewater being discharged into surface waters.

Further posing risk to surface and groundwater is the flooding of abandoned mines in Ukraine. When these flood, the water gets contaminated by the substance in the mine, often coal, and then runs off into seas, rivers, and the groundwater. As of July 2023, around 49 of these mines have been flooded in occupied east Ukraine. Two of the most serious threats are the Oleksandr-Zakhid mine, in which chlorobenzene and other hazardous wastes have been stored since 1989, and the Yunyi Komunar mine, in which the Soviet Union detonated a 0.3-kiloton nuclear bomb in 1979[25].

Along the 2,700km coastline on the Black Sea and the Sea of Azov, Ukrainian port cities have become targets of Russian attacks, which have led to oil spills and other means of water pollution. Further, artillery shells and fortifications deal direct physical damage to marine habitats. Landmines and sea mines, deployed to combat amphibious landings, disrupt the ecosystems on the beaches and coastal areas, while major rivers like the Dnipro, Dniester, and Don, which drain into the Black Sea and the Sea of Azov carry with them toxic substances from land-based military activity.

Lastly, Sonar systems used by navies, and the loud noises they project have led to increased strandings of dolphins in the Black Sea due to disorientation.

Climate change

The war in Ukraine has severely complicated efforts to reduce greenhouse gases, while making the nation more vulnerable to climate change. Before the war Ukraine had the goal to reduce its energy usage by two-thirds, while renewable energy took up around 13% of all installed energy[26]. By October 2022, 75% of wind stations and 50% of solar stations were decommissioned, mostly in the south of Ukraine, as funds that could have addressed climate change were and are allocated to the war effort[27].

In addition to hindering the combating of climate change the Russian invasion has left a huge carbon footprint of its own. In the first 12 months of the war an estimated 21.9 million tons of carbon dioxide equivalents (tCO2e) were released due to war-related activities and an additional 17.7 million tCO2e were released from war-related fires[28].

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[24] The World Bank. “Updated Ukraine Recovery and Reconstruction Needs Assessment.” World Bank, 23 Mar. 2023, www.worldbank.org/en/news/press-release/2023/03/23/updated-ukraine-recovery-and-reconstruction-needs-assessment.

[25] Klinkenberg, Abby. “The Radioactive Threat to Ukraine’s Groundwater.” FairPlanet, www.fairplanet.org/editors-pick/the-radioactive-threat-to-ukraines-groundwater/.

[26] “Що залишилося від “зеленої” енергетики в Україні.” Економічна правда, www.epravda.com.ua/publications/2023/05/24/700431/. Accessed 15 July 2024.

[28] CLIMATE DAMAGE CAUSED by RUSSIA’S WAR in UKRAINE by Initiative on GHG Accounting of War. 2022.

Landscape and habitat destruction

Ukraine, the "Green Heart of Europe," is home to much of the continent's biodiversity, including over 70,000 plant, animal, and bird species, many of them rare and endemic[29]. Their habitat is heavily affected by the war, which in turn threatens their survival. Since the beginning of the invasion around 30% of all protected areas in Ukraine, spanning 1.2 million hectares and 23 natural parks and preserves have been either destroyed or polluted as result of the war[30]. Digging of trenches and fortifications, large-scale military movements, landmines, shelling, wildfires, deforestation, and pollution all affect the structure and function of aquatic and terrestrial ecosystems in Ukraine. These destructive military activities have even brought some animals, such as the Steppe eagle, Black stork, Brown bear, Eurasian lynx, and Barn owl to the brink of extinction[31]. Lastly, conservation activities have been complicated by the war and Russian occupation.

Radiation risk

Before the war 50% of domestic electricity needs in Ukraine were covered by 4 nuclear power plants, while Ukraine also houses the former Chornobyl nuclear power plant site and its contaminated exclusion zone. In the wake of the war this has caused fears of nuclear sites coming under armed attack and potentially bringing about releases of radiation, spills, and even nuclear disaster.

On March 4, 2022, the Zaporizhzhia Nuclear Power Plant (ZNPP) in southeastern Ukraine became the first operating nuclear power plant to come under military attack. Russia's seizure and occupation of it has resulted in sporadic shelling of the plant and repeated disruption of its electricity and water supply, thus further raising concerns and fears of a catastrophic release of ionizing radiation[32]. Further factors increasing the risk of catastrophe are the stress and difficult working conditions for staff members, and the threat of sabotage.

Nova Kakhovka Dam

On June 6, 2023, the Nova Kakhovka Dam on the Dnipro River in southern Ukraine was breached by explosion, releasing 19.9 billion cubic meters of water from the Kakhovka reservoir. This led to the flooding of 77 settlements, more than 100,000 hectares of agricultural land, nature

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[29] "Environmental Accountability, Justice and Reconstruction in the Russian War on Ukraine | SIPRI." Www.sipri.org, www.sipri.org/commentary/topical-backgrounder/2023/environmental-accountability-justice-and-reconstruction-russian-war-ukraine.

[30] "New Coordination Center to Assess Environmental Impacts of the War on Ukraine | United Nations Development Programme." UNDP, www.undp.org/ukraine/press-releases/new-coordination-center-assess-environmental-impacts-war-ukraine.

[31] Platt, John R. "In Ukraine, Saving Wildlife Harmed by War • the Revelator." The Revelator, 21 Feb. 2023, https://therevelator.org/ecocide-ukraine/.

[32] "Ukraine: Russia-Ukraine War and Nuclear Energy - World Nuclear Association." Www.world-Nuclear.org, www.world-nuclear.org/ukraine-information/ukraine-russia-war-and-nuclear-energy.aspx.

parks and forests. 4000 people were evacuated, while 50 lost their lives[33]. Furthermore, hundreds of thousands lost access to safe drinking water and much of the 2023 harvest became waterlogged and was destroyed. Tragically the collapse killed tens of thousands of fish and an estimated 20,000 animals. The flooding too killed rare flora and fauna in parks and preserves. The Dnipro River was polluted with over 150 tons of machine oil, copious amounts of organic wastes, and an unknown number of landmines that were then carried downriver into the Black Sea.

The most destructive environmental impacts of this catastrophe will show in the long-term. As the Kakhovka reservoir provided irrigation from 3 entire regions of Ukraine it is estimated that more than 1 million hectares of agricultural land will be unusable for the next 3 to 5 years, due to a lack of water supply[34]. This farmland will then be more vulnerable to soil erosion and desertification. The Ukrainian Ministry of Energy and Natural Resources estimates the environmental damages of the dam destruction to amount to $3.1 billion, while according to the Ukrainian Grain Council it could lead to a 14% decrease in the volume of Grain exports for the country[35].

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

United Nations Development Program (UNDP)

The United Nations Development Program (UNDP) presented a plan of measures to address the environmental damage Ukraine has suffered due to the full-scale Russian invasion in Kyiv on 19 February 2024. The plan, named “The Environmental Compact for Ukraine,” is comprised of 50 meticulously crafted recommendations for Ukraine and the global community, while it calls for a harmonized approach to evaluating the environmental damage caused by the Russian invasion, delineates strategies for redressing the damage done, and indicates pathways for eco-centric recovery[36].

In addition, the UNDP and the Government of Sweden have launched a new project called “Mitigating the Risks of Long-Term Environmental Disasters in Ukraine Through the

[33] Sergatskova, Katerina . “Aftermath of the Kakhovka Dam Collapse | Wilson Center.” Www.wilsoncenter.org, 20 June 2023, www.wilsoncenter.org/blog-post/aftermath-kakhovka-dam-collapse.

[34] Sergatskova, Katerina . “Aftermath of the Kakhovka Dam Collapse | Wilson Center.” Www.wilsoncenter.org, 20 June 2023, www.wilsoncenter.org/blog-post/aftermath-kakhovka-dam-collapse.

[35] “War in UA Environmental Impact.” Top Lead Projects, www.topleadprojects.com/environmental-project-main.

[36] “UNDP Lends Support as Environmental Compact for Ukraine Is Unveiled.” UNDP, www.undp.org/ukraine/press-releases/undp-lends-support-environmental-compact-ukraine-unveiled.

Establishment of a Coordination Centre on Environmental Damage Assessment." It aims to help government bodies in collecting evidence and documents of environmental harm[37].

European Union (EU)

The European Union (EU) is deeply involved in estimating and condemning the environmental harms in the war in Ukraine. On 19 January 2023, the European Parliament adopted a resolution which recognizes the link between war and long-term damage to the natural environment and climate and supports the creation of an international register of damage 'to serve as a record for future reparations[38].

It further released the report," Russia's war on Ukraine: High environmental toll", estimating the environmental impact of the war, while also "Holding Russia accountable for the environmental damage." Furthermore, the EU held a conference on 23 November 2023, in which plans for a greener reconstruction of Ukraine after the war were outlined[39].

International Atomic Energy Agency (IAEA)

The International Atomic Energy Agency (IAEA) has taken several steps to stabilize the critical nuclear safety and security situation and prevent a nuclear accident in Ukraine. They monitor the situation daily and issue regular updates and reports to member states. In March 2022, after the attack on the ZNPP staff members from the IAEA were stationed in the nuclear power plant to observe and guarantee that the 'Five Concrete Principles' that have been outlined to ensure the protection of the plant, are being followed.

TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
24 August 1991	Ukrainian independence from the Soviet Union (USSR).
5 December 1994	Ukraine accedes to the "Non-Proliferation of nuclear weapons" treaty, and destroys all nuclear weapons stationed in country. As a result, their territorial and political independence is guaranteed by the UK, the USA and Russia as part of the Budapest Memorandum.

[37] "Environmental Damage Assessment." UNDP, www.undp.org/ukraine/projects/environmental-damage-assessment

[39] "Press Corner." European Commission - European Commission, https://ec.europa.eu/commission/presscorner/detail/EN/ip_23_6055.

13 November 2001	UN Resolution A/RES/56/4 is passed.
18-23 February 2014	As part of the Euromaidan movement, the Revolution of Dignity ousts pro-Russian President Yanukovych.
18 March 2014	Annexation of Crimea by Russia after military invasion.
12 April 2014	Beginning of the War in Donbas, between Russian-backed Separatists and Ukraine.
5 September 2014 & 12 February 2015	Minsk agreements I & II that sought to stop the fighting in Donbas.
24 February 2022	Full-scale Russian Invasion of Ukraine.
4 March 2022	Zaporizhzhia Nuclear Power Plant (ZNPP) in southeastern Ukraine becomes the first operating nuclear power plant to come under military attack.
18 March 2022	UN Resolution A/RES/ES-11/1 is passed.
6 June 2023	Nova Kakhovka dam is breached by explosives, which leads to humanitarian and environmental catastrophe.
1 March 2024	Resolution UNEP/EA.6/L.12 is passed.

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

UN Resolution A/RES/56/4[40]

The resolution "Observance of the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict," which was passed by the United Nation's General Assembly on November 13, 2001, stresses the importance of preventing environmental destruction during war by declaring the 6th of November as an international observance day for this issue. It further underlines that damage to ecosystems and biodiversity during wartime often lasts and can be visible for long beyond conflict, while its consequences are felt beyond the limits of national territories and the present generation.

[40] "A/RES/56/4." Undocs.org, 2024, https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F56%2F4&Language=E&DeviceType=Desktop&LangRequested=False.

Although it does not deal with the conflict in Ukraine directly it certainly describes the fears many have regarding the environmental situation there. Additionally, it accurately stresses the importance of mitigating the environmental impacts in areas of conflict.

UN Resolution A/RES/ES-11/1[41]

The Resolution "Aggression against Ukraine," which was passed on March 18th, 2023, by the General Assembly condemn the war of aggression by Russia. It does not explicitly mention environmental concerns but calls for an end to the war through political dialogue. It aims to protect civilians and civilian targets, while trying to find an end to the war through diplomatic means. Seeing as this resolution was passed in the immediate aftermath of the invasion and that as of the present the war has been raging for almost 2.5 years it is difficult to say that it has achieved its aims.

UNEP/EA.6/L.15[42]

At the sixth UN Environmental Assembly in Nairobi, Kenya on the 1st of March 2024 Ukraine proposed the resolution "Environmental assistance and recovery in areas affected by armed conflicts", which passed. This Resolution aims to make the United Nations Environmental Program's (UNEP) work on global environmental challenges more responsive, while reinvigorating their efforts on environmental assistance during armed conflict. It urges states to abide by international law and provides technical guidance on how to measure environmental damage. Very importantly this resolution is a first step towards recognized standards for environmental data collection. Additionally, it draws attention to the principles on the protection of the environment in relation to armed conflicts (PERAC Principles) [43].

The original draft of this resolution reiterated PERAC Principle 9 on state responsibility and cited the economic cost of damage. Due to opposition from other member states, most notably Russia and China, the final draft of the resolution was modified[44].

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[41] "A/RES/ES-11/1." Undocs.org, 2023, https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2FES-11%2F1&Language=E&DeviceType=Desktop&LangRequested=False.

[42] UNEP/EA.6/Res.12

[43] "Official Document of the United Nations." Legal.un.org, https://legal.un.org/docs/?symbol=A/CN.4/L.968.

[44] "UNEA-6 Passes Resolution on Environmental Assistance and Recovery in Areas Affected by Armed Conflict | Climate-Diplomacy." Climate-Diplomacy.org, 4 Mar. 2024, https://climate-diplomacy.org/magazine/environment/unea-6-passes-resolution-environmental-assistance-and-recovery-areas-affected.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Inter-agency group assessment of environmental damage in Ukraine[45]

One year after the Russian invasion of Ukraine the United Nations Economic Commission for Europe (UNECE) joined forces with partners including UNEP, OECD, UNDP, UNIDO, the World Bank and OSCE to coordinate an assessment of the environmental damage brough about by the war in Ukraine. The aims of this assessment are building up a more complete picture of environmental harm, sharpening assessment methodologies and providing robust evidence for future recovery and reconstruction[46]. The report was published in December 2023 and includes a comprehensive evaluation of the environmental impacts of the war, spanning over 28 pages.

Principles on the protection of the environment in relation to armed conflicts (PERAC Principles) [47]

The principles on the environment protection in relation to armed conflict (PERAC Principles) are a set of 27 principles adopted by the International Law commission at its twenty-third session in 2022. They outline how the environment should be protected before, during and after armed conflicts, and in situations of occupation, while varying in strength from non-binding guidance, to reflecting binding international law. The principles cover a vast range of topics, with principle 9 being especially important in relation to the war in Ukraine. PERAC principle 9 on State responsibility codifies two things: that states should make full reparation for damage caused by internationally wrongful acts, and that this can include the costs of damage to the environment in and of itself.

POSSIBLE SOLUTIONS

Collaboration with Local and International Organizations

In order to mitigate and estimate environmental harms of the war in Ukraine it is of utmost importance to facilitate collaboration with local and international organizations. Non-government organizations (NGOs) can contribute to access and knowledge of the affected areas, while local organizations also provide constant monitoring. Furthermore, working with regional authorities can lead to data-sharing agreements, which will help in accessing in accessing relevant information about the environmental effects of the war while also providing pre-war statistics that can be compared, to accurately assess the impact.

Further examples of collaboration include joint research initiatives, expertise exchange and task forces comprising of representatives of international and regional organizations. They

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[45] Informal Inter-Agency Coordination Group on Environmental Assessments for Ukraine Comprehensive Report Ukraine Environmental Damage Assessments. 2023.

[46] "UNECE Convenes Inter-Agency Group to Coordinate Assessment of Environmental Damage in Ukraine | UNECE." Unece.org, https://unece.org/environment/press/unece-convenes-inter-agency-group-coordinate-assessment-environmental-damage.

[47] "Official Document of the United Nations." Legal.un.org, https://legal.un.org/docs/?symbol=A/CN.4/L.968.

all lead to a comprehensive and effective framework in assessing and combating the ecocide currently unfolding.

Public awareness and education campaigns

Media and education play a big role in day-to-day life, which is why raising awareness and facilitating education campaigns are integral in fostering a collective response to the ecocide and further ensuring a sustainable recovery effort. These can include community outreach through workshops, local environmental committees, or environmental education in schools. Media in digital or traditional form can additionally engage and empower individuals and communities to contribute to environmental protection and restoration in Ukraine.

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