Environmental Impact of Armed Conflict: A Legal Concern from Global Justice Perspective

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Abstract: *Throughout the years, the maturing of a global community and enhanced knowledge of the growing deleterious effects of human interactions with the environment have resulted in the unequivocal acknowledgement of the fact that protecting the environment is a global concern. In light of this, various measures such as environmental conventions, protocols, agreements, sustainable development goals, etc. among states have been developed, imposing global environmental responsibilities, such as the United Nations ENMOD Convention and Protocol I, along with more recent measures such as the 2022 ILC's proposed 27 draft principles for PERAC. However, with the advent of globalisation along with various economic, political, religious, social and cultural factors, contemporary issues such as environmental harm by way of armed conflict, a present example of which is the Russia-Ukraine War, continue to become frequent. The aim of this paper is thus, to firstly, assess the impact that armed conflict has had on the global environment and evaluate various recent examples as well as the implications of the same in the global context. Based on the previous averment, to assess if this environmental concern is indeed a global justice concern or restricted only to the involved states and secondly, to analyse the existing international legal framework/ mechanism and its practical application, adherence and effectiveness in recent years. Lastly, the proposition that there is a growing urgency and importance of a revised legal effort, founded on global cooperation, in view of several recognised international environmental conventions, protocols, etc., with regard to taking measures to protect and preserve the environment in wake of the recent international armed conflicts impacting the environment is scrutinized.*

Keywords: Armed Conflict, Global Justice, Ecocide, Hague Regulations, Geneva Convention, Rome Statute.

I. INTRODUCTION

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Armed conflicts and wars are strenuous events, to say the least, and the loss suffered generally far too immense. Historically, it has resulted in not only environmental harm, but also a humanitarian crisis, major blow to the economy, displacement, infrastructural damage, poverty, and so on. The most obvious and well acknowledged repercussions are the casualties of the war and the lives lost, but more often than not, we have overlooked the damage caused to our natural environment during these times. "Ecocide" are acts which lead to destruction of

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the environment, similar to "ecoterrorism"[1]. These acts can be negligent or intentional human actions. Concerns are raised for the toll these armed conflicts have with regard to the lives at stake and the impact it leaves on the economy and society. As important as these concerns are, we, as a world community, have fallen behind to grant due attention to the effect it has on the environment. While the international legal framework has its own role to play, the primary duty lies on our global community, acting as one, to address these concerns.

There are many ways in which armed conflicts have and continue to impact the environment. Although armed conflicts evidently take place in the environment, it is somehow disregarded when it comes to acknowledging the harm caused to it during war. Armed conflicts impact the environment through the application of weapons such as bombs, chemicals and gases, nuclear weapons. It includes the extraction of timber from forests for war purposes, destruction of land mines, oil fields and battlegrounds. Thereby, depleting physical capital. Weapons of warfare, military actions, exploitation of natural resources and insufficient governance contribute to the environmental damage during armed conflicts. The harm to the environment that arises out of armed conflicts is substantial, and it is important to realise that it speeds up the degradation to the environment, and major environmental issues such as climate change and loss of biodiversity. Be it earth, water, air, animals or flora and fauna, all elements of the environment are affected. During and in the aftermath of armed conflicts, attention to subsequent environmental issues is generally limited against the economic problems faced. Maintaining military equipment has disposal tolls. Countries often neglect the pollution caused by the military, the costs of managing which are high. Modernisation of warfare and war equipment often go hand in hand with the impact on nature.

Massive CO2 emissions, radiation through atomic bombing and radioactive debris take place during these conflicts and affect the climate. Air and soil pollution is caused by explosives and causes habitat destruction. When industries such as oil facilities are attacked, the resultant fuel leakage contributes to widespread pollution and is also harmful for public health. Military scrap too adds to the pollution, as it may contain harmful materials and an increase in waste dumping is possible. Nuclear weapons have devastative capabilities. Armed conflicts also result in destruction of forests, wells, farms, etc., climate change and damage to ecosystems. Destruction

[1] Sean Fleming, What is Ecocide and Which Countries Recognize It In Law?, WORLD ECONOMIC FORUM (Aug, 30; 2021), (June 9, 2023), https://www.weforum.org/agenda/2021/08/ecocide-environmental-harm-international-crime.html.

of infrastructure makes it difficult to maintain food security especially for vulnerable communities which may become refugees in need of shelter, water and sanitation facilities and the areas which they move to may come under too much pressure. The people who are displaced can engage in severe deforestation for wood and charcoal, etc and can also result in unchecked hunting. At times, refugees travel across boundaries.

During occupations by another state, although they have a duty to protect the land and population of said occupied land, their environmental duties are not laid down. At times when the conflict is internal, i.e., between rival states within a nation, conflict is beyond the scope and reach of international treaties and law. Thus, any environmental damage may go uncurbed by international organisations. These non-international armed conflicts can be extremely harmful to the habitats as the military in such circumstances often targets the environment to reduce access to water, food and other resources for the opposing side while simultaneously also relying on the natural resources for their various operations. The resulting displacement and loss of wildlife is unavoidable.

Local environmental laws take a back seat during conflicts and may be ignored. At times, the strain of the armed conflict itself is so big that governments are left unable to meet their environmental obligations. All this can impact a country to an extent where it can take years for the country to make up for all the damage. Costs of recovery can be major. The environmental reach of these harmful effects is so wide that it reaches even those far away and not involved in the conflict itself. Further, these effects are sufficiently long lasting and, in some cases, affect future generations too, through air, water and soil pollution and other health concerns which arise. The extent and magnitude of these armed conflicts are cataclysmic, severely altering the shape and quality of landscape to a point beyond which it can be altered back to its original state. Thus, the protection of our environment is a serious international concern, one that we must essentially address and taking into account the extent to which wars can devastate the surroundings, we must have proper laws in place so that these conflicts do not have calamitous results and the same has been recognised more and more over the years.

II. ENVIRONMENTAL CONCERNS AS A GLOBAL CONCERN AND IN LIGHT OF GLOBAL JUSTICE

A. Environmental Harm Due to Armed Conflict As A Global Concern

First, we must understand whether these environmental concerns due to armed conflicts are indeed a global concern. Such armed conflicts lead to destruction of habitats, employ hazardous levels of pollution, degrade sea and land soil, and many other environmental issues, making it a global concern[2]. A global concern can at times be construed as a slightly broader term than a problem of global justice. There are many environmental issues which are concerns of global justice, but in order to elaborate, a problem of global justice would surface when one or more of these conditions are met:[3]

(i) Actions that can be traced to one or more state/s affect in a negative manner residents in another state/ such actions bring a benefit or reduce harm to residents in another state.

(ii) Normative considerations such as norms or institutions are present which mandate entities in one state to take particular actions with respect to entities of another.

(iii) A problem affecting residents of one or more states cannot be solved with cooperation of others.

The environmental harm that results from an armed conflict between states undertaking intentional military action against each other would impact not only those states, but also the overall environment nearby as well as other states, depending on its intensity. A duty of a developed nation or a nation with sufficient resources or mediated through international organisations dedicated to human rights or protection of environment, to help can be said to be under a normative consideration to assist the nation affected from such armed conflict on humanitarian grounds and other normative norms. Environment is an already alarming issue, with various concerns like climate change, ozone depletion, loss of biodiversity, etc. taking place in normal circumstances and further elevated during the rigorous damage caused by armed conflicts. The air pollution arising from war weapons and airstrikes, intense destruction to water supply, sanitation and industrial infrastructure, are only some of the ways in which the environment is impacted in such circumstances. It would be extremely difficult for any state,

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[2] CHRIS ARMSTRONG, A BLUE NEW DEAL: WHY WE NEED A NEW POLITICS FOR THE OCEAN (New Haven, Yale University Press, 2022).; *Also* STEPHEN M. GARDINER, A PERFECT MORAL STORM: THE ETHICAL TRAGEDY OF CLIMATE CHANGE (Oxford, Oxford University Press, 1 ed. 2011).

[3] Gillian Brock and Nicole Hassoun, Global Justice, THE STANFORD ENCYCLOPAEDIA OF PHILOSOPHY (June 9, 2023), https://plato.stanford.edu/archives/fall2023/entries/justice-global.html.

let alone one that is severely affected and having very limited resources, to remediate such issues without the cooperation from other states. Hence, cooperation is crucial to address such issues. Even if not in a strict sense, considering all these factors, it is evident that the issue at hand can at least be classified as a global concern. In light of this, a global concern would also give rise to the existence of global duties. It can be contended that the argument Peter Singer gives in relation to a global duty to address global poverty[4], cannot in every aspect, but in a very broad impression, be applied here in the sense that his argument that we have a duty to assist the needy, regardless of their geographical proximity or not, can be held true in this regard as well.

B. Environmental Concerns in the ambit of Cosmopolitanism and Global Justice

What is the responsibility of a state towards reviving the environment of all the damage caused in its war? How can such responsibility be clearly established? And even if it can be established, what is the balance to be drawn between enabling a state with limited resources to utilise them for rebuilding its infrastructure, restoring economic capabilities, rehabilitating its people etc. and to utilise them for minimising and remediating the damage that is caused to the environment? Is there a duty that developed nations hold in such scenarios, seen as damage to the environment is ultimately a global concern requiring a multilateral effort? These complex questions make it all the more difficult to work through such situations and conflicts, and to a large extent, are still left unclear on a global level.

There is no singular definition of justice, only various perspectives which help broaden the understanding of this term. Principles of fairness and justice may be accepted as its considerations, although what would exactly be considered fair or just can again be disputed. While Amartya Sen may base this on capability equality, Rawls may prefer an answer more in lines of equality of condition. How a global concern will fit into these dimensions would require a thorough study. The concept of cosmopolitanism rests on the concept of a world community, of which all human beings are members who are entitled to equal respect and consideration, as opposed to being limited to only a rigid national identity. These members hold fellow feelings that we feel towards everyone and which unites all of us. A plausible relationship may exist between cosmopolitanism and the willingness to protect the

[4] PETER SINGER, FAMINE, AFFLUENCE AND MORALITY 229–43 (Philosophy and Public Affairs, 1972).

environment - these fellow feelings, along with other cosmopolitan values, might imbibe in a person a deeper concern for the world environment rather than one who holds strictly nationalist or patriotic values. Nationalism may only invoke concern for environmental issues to the extent their patriotic values allow, or at least a deeper sense of concern for national environmental issues. However, with the understanding that an environmental concern is ultimately a transnational and global concern, scholars argue that a global sense of belonging or an obligation to the citizens of the world, supported by cosmopolitanism, may favour a feeling of obligation towards the global environment.[5] An alternative understanding, however, is that nationalism may address environmental concerns in some nations, while the situation might be opposite in others based on the extent of nationalist identity individuals feel.[6] Developed nations, to the extent that their consumption in the environmental sphere is higher, owe a duty to the same extent towards the ones whose share in the sphere is diminished.[7] This burden-sharing is also dependent on the basis of global justice, reliant on principles of fairness and just-ness, where benefits and burdens are mutually shared. Ultimately, the cosmopolitan theory can support global environment issues only when there is a burden-sharing, a sense of global moral obligation across nation-states and consent, and such a situation, at least currently, is far from reality.

III. EXISTING INTERNATIONAL LEGAL FRAMEWORK AND ITS EFFECTIVENESS

Protection of the environment is partially addressed by international environmental law, laws of war, international humanitarian law, general international law and other local laws of affected countries. Hence, there are direct and indirect legislations which offer protection of the environment during armed conflict. Several UN treaties have provisions to this effect, such as the World Heritage Convention in 1972. "*Jus in bello*" (the law in waging war) or "International humanitarian laws" are ethical rules and legal 'codes of conduct' that are present to restrict or ban certain actions and/or weapons and to protect certain people or property from

[5] Teena Gabrielson*, Green Citizenship: A Review and Critique*, 12(4) CITIZENSHIP STUDIES 429, 437 (2008)

[6] Lauren Contorno, *The Influence of Cosmopolitan Values on Environmental Attitudes: An International Comparison*, 17 RES PUBLICA - JOURNAL OF UNDERGRADUATE RESEARCH 14 (2012).

[7] Zev. Trachtenberg, *Complex Green Citizenship and the Necessity of Judgment,* 19 (3) ENVIRONMENTAL POLITICS 342 (2010).

the damage of conflicts. It indirectly attempts to also protect the environment the population lives in.

Customary international law follows the principle of proportionality in the sense that it means the force or weapons used must be reasonably proportionate to the achievement of a sensible military objective. Anything in excess of that would not only be unnecessary and unfair, but also cause undue damage to the environment.

a) The International Committee of The Red Cross (ICRC) is an organisation aimed at humanitarian protection and assistance in times of armed conflict, as well as promoting respect for and implementation of international humanitarian law. This makes it an institution of prime importance for environmental protection during armed conflict. The ICRC also led the adoption of the Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict[8] ("ICRC Guidelines") as updated in 2020, providing a summary of the existing law, work carried out, and aims for the future. These guidelines were further recommended to all states.

b) The Additional Protocol I[9] also holds relevance. In Article 35, paragraph 3 of the Additional Protocol 1, there is a specific prohibition as to using means of war which may cause widespread, long-term and severe damage to the environment. This three-standard test can be considerably difficult to establish. Article 55 also refers to protection of the natural environment against long-lasting damage and non-prejudice to the health of the population. However, in practice, the application of these articles is very limited.

c) The ENMOD Convention, 1976[10] is based on the aggressive exploitation of the environment. It is a crucial framework. Article II, paragraph 1 specifies the manipulation techniques that fall under this convention. And this manipulation used by the military or other hostile use by parties to the convention should not, as per Article

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[8] ICRC Guidelines, International Committee of the Red Cross (2020), www.icrc.org/en/publication/4382-guidelines-protection-natural-environment-armed-conflict.

[9] Additional Protocol to the Geneva Conventions of 12 August 1949 relating to the Protection of Victims of International Armed Conflicts (1949).

[10] Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (1976).

I, have widespread, long-lasting or severe effects, and this is in relation to any other State Party. Notably, non-military or non-hostile use is not covered under this convention.[11] Additionally, if solely a state that is not party to the Convention is affected, it would not be covered. The subsequent articles of this convention also lay down important principles. Under this convention, states can make complaints before the UN Security Council.

d) Article 23 (g) and 55 of the Hague Regulations, along with Article 53 of the Geneva Convention (Fourth), prescribe some limitations on the occupying power with regard to property and its destruction. The Martens Clause in the preamble to the 1899 Hague Convention II specifies that in cases not covered by international treaties or customary law, the principles of international law which are acquired from principles of custom, humanity and public conscience would protect individuals. Today, certainly protection of the environment can broadly fall under the dictates of public conscience.

e) The Rome Statute of 1998 of the International Criminal Court classified intentionally with knowledge, causing widespread, long-term and severe damage to the environment in excess of the principle of proportionality, a war crime.[12] This is similar to the language used in the Protocol, but the major distinction lies in the two requirements here, which are that both intention and knowledge (element of *mens rea*) is required, along with violation of the principle of proportionality, i.e., excessiveness. Environmental factors need to be taken into consideration while determining the necessity and proportionality of pursuing military objectives.[13]

f) Article 2 para. 4 of Protocol III, annexed to the 1980 Convention on Prohibitions or Restrictions of the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate lays down a prohibition as to making forests or other plants, by incendiary weapons, the purpose of attack, subject to an exception of camouflage, cover, etc. The wording of the article is implicit of a limited scope, as it is only restricted to forests or other plants in a natural environment,

[11] M.J.T. Caggiano, *The Legitimacy of Environmental Destruction in Modern Warfare: Customary Substance over Conventional Form*, 20 BOSTON COLLEGE ENVIRONMENTAL AFFAIRS LAW REVIEW 479 (1993).

[12] Rome Statute of the International Criminal Court, 1998 § 8 (2) (b) (iv).

[13] ICJ REPORTS, Advisory Opinion on Legality of the Threat or Use of Nuclear Weapons, 241, 29 (1996).

with the exception of fulfilling objectives like camouflage. Hence, it can be said that the practical application of this article is severely restrictive.

g) The UN General Assembly passed a resolution 47/37 directly regarding protection of the environment in times of armed conflict, and highlighting that such destruction is directly in contradiction of international law.[14]

Various MEAs such as the 1949 Geneva Convention IV, Convention of Third-Party Liability in the Field of Nuclear Energy (1960), and others have taken place. There are several treaties such as the Protocol of the Use in War of Asphyxiating, Poisonous or Other Gases & of Bacteriological Methods of Warfare, etc.

Recently, UN International Law Commission's draft principles on Protection of the Environment in Relation to Armed Conflict were adopted and appeared in the Yearbook of the ILC, 2022[15]. These principles complement the ICRC's guidelines, out of which rule 2 of the ICRC's is identified as a rule of customary IHL. Key recommendations have been made for parties to armed conflict, a fixed upper limit on the appropriate destruction caused has been drawn up, disproportionate damage in banned, and even non-state armed groups have been included in the range of IHL obligations in reference to protection of the environment. States have been directed to implement supplemental measures to protect the environment during armed conflicts, agreements relating to military forces and peace operations should be settled taking into consideration ways to prevent and restore the environment of the harm that is caused from such armed conflicts. The principles of proportionality and precaution shall be exercised, pillage and reprisals are prohibited, transboundary harm should be prevented and long-lasting environmental modification techniques should not be used by States. The United Nations work includes sustainable development and climate action. In 2015, the UN launched the Sustainable development agenda. The Rio Declaration laid down the principles of sustainable development and long-term environment protection for welfare of all generations.

It also revised Principle 21 of the Stockholm Declaration. Under Rio declaration, states are to cooperate in the development of international law in relation to liability for effects on the

[14] UN GAOR, Protection of the Environment in Times of Armed Conflict, G.A. Res. 47/37, UN Doc. A/47/49 46 (1992).

[15] Protection of the Environment in Relation to Armed Conflicts, II Yearbook of ILC A/CN.4/L.961 Add. 1 Ch. V (2022).

environmental damages caused by armed conflict, by virtue of Principle 24. The Rio Declaration, Stockholm Declaration and World Charter for Nature states that the state shall make sure that jurisdictional activities do not cause damage to the natural resources located in other States and nature is to be secured against war degradation.

IV. MAJOR INSTANCES OF ENVIRONMENTAL HARM DUE TO ARMED CONFLICT

A. Instances in history

If we take into account World War I and World War II, two of the deadliest wars in the history of the world, it provides us with a gritting example of the destruction brought and the horrendous costs we had to pay. It is well known that not only were millions of lives (of both soldiers and civilians) lost, the economic balance of the world was shaken, influenza spread rapidly, political/racial executions were carried out, social life changed, it led to economic depression and holocaust and it caused dissent among several nations. But although lesser realised, just as alarming are the consequences it left on the environment. There is an absence of sufficient data regarding detailed harm to the environment during these wars, but it is a given that wars of this magnitude are bound to cause damage. WWI substantially destroyed forests and altered the land and soil of Europe, more so due to being severely contaminated by the many artillery shells used in the war. P.S. Risdale, a forester in the U.S. Army during WWI, accounted northern France's trees "*that have not been blown down or cut through or shattered have been so badly damaged that they will die; others, pitted with bullet holes or wounded by other shot, are now open to disease or insect attack*.".[16]

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Subsequent conflicts also led to sea waters getting polluted, along with various experiments on atomic and nuclear weapons which gravely impacted the environment. However, the end of World War II was a turning point as for the first time ever, the need for an international body of nations to promote international cooperation and prevention of future conflicts was realised. Peace treaties were signed after WWII and most prominently the United Nations was founded and the Universal Declaration of Human Rights adopted. UDHR, although not legally binding, was the first Declaration to have globally established rights which were believed to be

[16] 22 P.S. RISDALE, SHOT, SHELL AND SOLDIERS DEVASTATE FORESTS 334 (American Forestry, 1916).

inherently entitled to all human beings and have subsequently also been referred to in various international treaties since its adoption.

Destruction of homes, environment and infrastructure, pollution and dislocation of people can be seen in wars subsequent to WWII as well. There are several examples in the 20th and 21st century itself. Though the exact extent of damage to the environment cannot be estimated, certain instances are available as data. The World Trade Centre explosion caused an atmospheric plume (toxic chemicals such as furans, metals, dioxins, etc.), where a large pile of smoking rubble burned for months. Dust particles from the attack spread far to cities miles away, exposure to which caused health issues. The United States' attack on Afghanistan in 2001 impacted thousands of villages and their surrounding areas where safe drinking water was compromised. Forest cover was also destroyed, and explosives caused pollution to air, soil and water.[17] Adding to the problem is the increasing number of people getting displaced. Land productivity is also damaged due to loss of vegetation cover. The war between Israel and Lebanon in 2006 involved bombing a power station near Beirut where damaged storage tanks leaked tons of oil into the Mediterranean Sea, affecting aquatic life. Some of the oil spill was burned, further causing air pollution. A major herbicidal programme was carried out during the Vietnam War, which destroyed approximately 14% of Vietnam's forests and degraded agricultural yield. Chemical spray, particularly harmful Agent Orange, was used and resulted in serious health issues and pollution. Even in 2013, chemical weapons used in Syria caused a number of casualties.

The environment in Iraq has been severely affected since the 1980s Iran-Iraq war, in which there was a high use of chemical and biological weapons, including a large number of oil tankers which spilled tons of oil in the sea[18]. This was the first time the UN Security Council had stepped in to refrain from actions that may endanger peace, security and marine life in the Gulf region. Along with this, the 1991 Gulf War, the impact of UN sanctions as well as the Gulf dispute also damaged the environment in Iraq. In a case, Armed Activities on the Territory

[17] UNEP, Afghanistan: Post-Conflict Environmental Assessment, Switzerland, UNITED NATIONS ENVIRONMENT PROGRAMME (2003), (June 9, 2023), http://postconflict.unep.ch/afghanistan/report/afghanistanpcajanuary_2003.pdf.

[18] P. Antoine, International Humanitarian Law and the Protection of the Environment in Time of Armed Conflict, 32 INT'L REV. OF THE RED CROSS 517 (1992).

of the Congo (DRC v. Uganda) in 2005[19], the ICJ held that the Republic of Uganda as an occupying power in the *Ituri* district had failed to comply with its obligations to prevent acts of lootings, plundering and exploitation of Congo's natural resources and hence had violated its obligations of vigilance under international law (particularly stated in Article 43 of the Hague Regulations of 1907), which resulted in a duty of reparation, meaning compensation for the injury caused. This case gave recognition to the duty of a State to be vigilant in preventing acts of looting and plundering from occurring on grounds such as exploitation by occupying powers is illegal and that reparations are required for damage to the natural resources under the context of an armed conflict.

B. Recent instances

1. Russia-Ukraine War

The environmental magnitude of the Russian conflict in Ukraine is manifold and long-lasting, some even terming it as ecocide. Various forms of infrastructure, from airports to oil storages, have been set on fire leading to widespread smoke clouds and toxic fumes. In this regard, bombing of pharmaceutical, energy and chemical facilities or allegedly nuclear plants has also added to the pollution and can be questioned as being directed at military objectives and the criteria of proportionality in its regard. The head of the IAEA visited Ukraine in April, 2022 to issue nuclear safety assistance as Ukraine's nuclear power plants containing harmful radioactive substances were under danger[20]. A website, Eco Zagroza, to record the environmental damage committed by Russia was developed by Ukraine's Ministry of the Environment and Natural Resources in July, 2022, which showed that based on Ukraine's analysis, as of July, 2023, an estimated damage of €48.33 billion to the environment was inflicted by Russia. A tribunal on the crime of aggression against Ukraine, which includes the

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[19] *Armed Activities on the Territory of the Congo* (*Democratic Republic of Congo v. Uganda*), Judgement, ICJ Reports 168 (19 Dec., 2005).

[20] IAEA, Ukraine Nuclear Power Plant for Safety and Security Assistance!, Press Release (29 Mar., 2022), https://www.iaea.org/ newscenter/pressreleases/iaea-head-travels-to-ukraine-to-start-delivery-of-nuclear-safety-and-security-assistance.html

interconnection between war and damage to the environment, is to be established via the resolution adopted by the European Parliament in Jan., 2023.[21]

The loss of biodiversity, radioactive contamination, and severe damage to flora and fauna, effects of nuclear-warfare, release of hazardous substances, chemical pollution, destruction of forests, agricultural lands, infrastructure, marine environment, wildlife, are the multitude of ways in which air, water, soil and the environment as a whole has been damaged. The destruction of Ukraine's largest dam, Kakhovka Dam resulted in massive flooding, coupled with destruction of ecological areas such as protected wetlands are other major concerns that will have long-term impacts. Ukraine has been exploring ways to hold Russia accountable, however under the vast array of challenges such as collecting evidence, lack of sufficient precedents to such reparations, difficulties as to quantifying damage, etc., it is problematic. As both Ukraine and Russia are parties to the Geneva Conventions, Articles 35, 55 and 56 of Protocol I can come into play for the damage to the Kakhovka dam. The damage to water supply, such as the system from Dnipro River, has resulted in many people losing access to safe drinking water. Green reconstruction, although more of a necessity rather than a choice in the current circumstances, is essential but hurdled by the limitation of resources. UNEP also assisted the Ukraine Government in conducting environmental impact monitoring[22], and the Executive Director of UNEP stressed that massive international support would be required to restore the damage caused. This has also been highlighted in various other articles, and U.S. along with other countries[23] have committed large sums for assistance. This signals the global collective responsibility we hold, to our fellow human beings, and our global environment.

2. Israel-Palestine Conflict

The humanitarian crisis and the dangerously increasing number of people who are being injured and killed every day is in itself an alarming concern. Along with the ongoing conflict, the environmental impact that is looming is a cause for concern too. Israel and Palestine have

[21] EU, Resolution adopted on 19th January, 2023 (2022/3017(RSP)), C 214/109 (2023), https://www.europarl.europa.eu/doceo/document/TA-9-2023-0015_EN.html.

[22] UNEP, The Environmental Impact of the Conflict in Ukraine: A Preliminary Review (2022), https://www.unep.org/resources/report/environmental-impact-conflict-ukraine-preliminary-review.

[23] UNDP Press Release, New Coordination Centre to Assess Environmental Impacts of the War on Ukraine (Mar., 2023), https://www.undp.org/ukraine/press-releases/new-coordination-center-assess-environmental-impacts-war-ukraine.

long been among few of the most climate vulnerable territories. An environmental crisis has been developing in Gaza for years, and the current situation has only made it worse. The aggressive airstrikes and extensive number of bombs and detonations that have been used for attacking each other's territory in the Israel-Palestine conflict has led to massive release of chemicals and gases such as soot and greenhouse gas in the air, evident smoke clouds and loud thuds, and resulting in severe air pollution. The effect that this armed conflict has on the environment can be potentially long-lasting, affecting crops, water and air. Infrastructure such as sewage networks has also been destroyed. The current destruction of land is also severe, damaging soil quality as well as the ecosystem. Even before the current aggravations, in 2021, Israel uprooted thousands of trees.[24] Since the 1969 occupation by Israel, it has taken control of various water regions. Amidst this conflict, entry points for sending humanitarian aid are limited and the brutal attacks by Israel in the Gaza Strip have cut off supply of sufficient food, water and power, rendering many helpless. Israel has cut off water supply. Some people in Gaza have resorted to contaminated tap water.[25] These water, sanitation and climate change concerns are rising every day.

V. ONGOING OBSTACLES AND THE WAY FORWARD FROM A GLOBAL JUSTICE PERSPECTIVE

The essence of the way forward lies in a global collective effort and responsibility and it is this sense of collective responsibility that gives the normative backing to legal obligations. Over the years, international law and principles in regard to times of armed conflict have come up with a view to limit some of the damage caused by warfare by protecting populations, infrastructure and to some extent, the environment. There has been an increased acceptance of the environmental impacts that are suffered and hence grounds for extraterritorial obligations that can arise during armed conflicts with respect to the effects on the environment. However, the influence of several indirect variables such as political and economic factors still need to be more thoroughly determined.

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[24] Palestine Central Bureau of Statistics, Press Release (June, 2022), https://www.pcbs.gov.ps/post.aspx?lang=en&ItemID=4253.html

[25] Reuters, *In Gaza, People Resort to Drinking Salty Water, Garbage Piles Up* (Oct., 2023), https://www.reuters.com/world/middle-east/gaza-people-resort-drinking-salty-water-garbage-piles-up-2023-10-16.html

Moreover, many of these principles and treaties are not enforceable, countries therefore at times go on to neglect them during conflict. Due to this unenforceable nature, it poses a hurdle to ensure compliance and accountability. International humanitarian law may prove to be insufficient to protect the environment during armed conflict. The environment and inevitably us, continue to pay the price for lack of more stringent laws in this regard. Collecting evidence and quantifying the damage also becomes complicated. Although specifying the defaulting party is complex, the enforcement and punishment in situations of violation of laws is required but currently not so strict. Parties of the Geneva Conventions are obligated to enforce its provision and hold accountable those who don't, but nations have not been entirely willing to enforce these provisions.

The threat to our environment is beyond comprehension if we look at the potential of methods and weapons of war available with countries today. In practice, these laws have not been able to sufficiently protect or impose accountability on countries. Further, countries like Iraq, Afghanistan and others have suffered from violence and armed conflict to an extent beyond their capability to sustainably recover from it. Infrastructure has been destroyed, civilians have been largely displaced, and access to basic safe water and sanitation has been limited. In Yemen, destruction of water systems resulted in an epidemic of cholera in which many people suffered. The capacity of least developed or developing countries to cope with the damage that is caused to the environment is significantly limited, more so in the face of all the destruction caused to the economy, population and infrastructure.

The language of the laws currently in place have made them vulnerable due to its ambiguity and scope of loopholes being exploited by the military, as they find ways to unfairly differentiate between legitimate and illegitimate targets in their favour. Only few laws or declarations explicitly address protection of the environment during warfare or conflict. We must also consider whether military operations should be included in global attainment standards under multilateral environmental agreements. Military actions in the context of their consequent effects on the environment are ignored, hence a balance needs to be drawn between the two based on proportionality. A fundamental standard of necessity should be more strictly imposed, with the obligation to opt for the least harmful military means wherever possible.

Ecological considerations and the impact on the environment of modernised developments in the weapons and warfare equipment and experimentation, etc. should be taken into

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consideration and kept within certain permissible limits as far as possible. A need for a body of law and for rules governing states which are not involved in the conflict but whose territorial environment may be particularly and severely affected by its impact should be looked into. Stricter adherence to the principles of proportionality and necessity should be adhered. In wake of the Russia-Ukraine War, some also promote the idea of drafting a new legal framework on ecocide. There is an urgent need to realise the correlation of international humanitarian law and international environment law, and their rules to be applied harmoniously. Hence, the applicability and interpretation of the ENMOD Convention, Protocol I of the Geneva Convention, and other international treaties should be read in harmonisation and given more clarity. Some forms of damage that are not covered by ENMOD or Protocol I, hence still permissible, should also be addressed. Cases which address violations of IHL and the States responsibility and liability towards the same have also been rare. Ultimately, from a legal perspective, ensuring compliance and strengthening implementation is a fundamental goal in all aspects.

Legal framework can only go as far as states and individuals take it. 'Law' and its specificities can lay out the well-defined international obligations, however, global justice allows for capacities beyond this clear allocation to flourish. The question is then not what one state owes another, but what we owe to each other as human beings. While cosmopolitanism and the idea of a single global state is far-fetched, the basic tenets of this theory of a global collective responsibility remain true. Along with this, the existing high level of interaction amongst states further assists in normative guidance to assist. The environmental damage due to armed conflicts is not limited only to the involved states, but is transnational in nature. While the state itself has a duty to remediate the harm caused, the gravity of such conflicts is such that no substantial restoration can take place without the collective efforts of all. Hence, a collective duty of nations arises. A practical example of this wherein various nations are assisting in dealing with the environmental damage is in the Russia-Ukraine War, but expansion is needed. Although there is a growing realisation of the need to address the environmental aspects of armed conflicts, it is yet to be met with equally sufficient actions to address the issue. In the wake of the multiple conflicts taking place across the world, the impact of which will be felt in the world, the duty of nations, from an international justice perspective, and the duty of all individuals, from a global justice perspective, to help out, in their respective capabilities, is at the forefront of sustainable environment practices. There are two approaches to how this duty

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or responsibility can be divided, one that is based on the capabilities and factors such as power, collective ability, etc.[26], and the other based on remedial responsibilities, where there is a connection, causal role, benefit derived, or capacity, etc.[27] to assist.

VI. CONCLUSION

Without normative guidance and the desire and feeling of collective responsibility towards addressing this issue, the legal framework alone cannot succeed. As a global concern, states must take up the global responsibility to attend to the issues of environmental harm arising due to armed conflict. This is of particular relevance in the current world scenario where environmental degradation is a glaring reality and armed conflicts are taking place in several states, further enhancing the problem. The legal framework aspect of current laws are either somewhat ambiguous or not adequately complied with, or both. Lack of proper and sufficient information on all levels about the harmful effects of armed conflicts on our surroundings and environment leads to continued neglect. The threat to protection of the environment that nuclear and chemical weapons as well as explosives pose need to be adequately assessed as they are largely capable of harm. It is important that we must also take into consideration the vulnerabilities of various countries, as many do not have sufficient resources to recover rapidly post war within reasonable time.

Yet, the most important need at the ground root level is the need for all nations to realise and address environmental damage as a global issue. This is to be supplemented with properly enforceable international law. We must question whether the existing laws and treaties are sufficient in protecting the environment during armed conflicts and limiting the damage caused to it or whether we need new laws in place, along with states collectively joining in and taking responsibility to mitigate the harm. The international humanitarian laws present today can only be useful if properly carried out. If more stringent laws cannot be placed, focus should be on making sure the existing laws are adopted and complied with as many states as possible. There is a strong need to ensure compliance with the rules of IHL. It remains to be seen how effective the newly drafted principles will be in the coming years.

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[26] IRIS MARION YOUNG, RESPONSIBILITY FOR JUSTICE 134 (Oxford: Oxford University Press, 2011).

[27] DAVID MILLER, NATIONAL RESPONSIBILITY AND GLOBAL JUSTICE 67 (Oxford: Oxford University Press, 2007).

Further thought should also be given to the suggestion given by some experts at the CDDH that nature reserves should be declared demilitarized zones in the event of conflict. It is the need of the hour that we must focus on coming together to support and rebuild the suffering environmental capacities. This also requires adherence to and implementation of the rules. Its importance cannot be neglected, for the current or future generations. Cooperation is key as damage to our natural environment is dangerous for all parties to the conflict. The international community must realise that protecting the environment benefits all and the recent deterioration of the environment only makes it more important to strengthen the standards of protecting the environment. There is a global collective responsibility we hold, to our fellow human beings, and our global environment, to work together.

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