

UNEP COMMITTEE - BACKGROUND GUIDE

1) Overview of the Body/Organ

The United Nations Environment Programme (UNEP) was established in 1972 in response to the escalating concerns surrounding environmental degradation and the pressing need for international cooperation in environmental management. This initiative emerged from the Declaration of the United Nations Conference on the Human Environment held in Stockholm, Sweden, which marked a pivotal moment by bringing environmental issues into the global spotlight. For the first time, the environment was recognized as a critical concern requiring collective action rather than individual responses from sovereign nations. This shift in perspective laid the groundwork for international dialogue and collaboration on environmental matters.

One of UNEP's significant milestones came in 1985, with the adoption of the Vienna Convention for the Protection of the Ozone Layer. This groundbreaking agreement facilitated discussions on a "possible protocol that would provide specific targets for certain chemicals," (4) highlighting the need for a coordinated global response to ozone depletion. Notably, the Vienna Convention was remarkable as it became "the first convention of any kind to be signed by every country involved," (2) underscoring the urgency and universal commitment to addressing environmental issues. This convention was instrumental in the subsequent development and enforcement of the 1987 Montreal Protocol, which is celebrated as an immensely successful multilateral environmental agreement. The Montreal Protocol was a "multilateral environmental agreement that introduced controls on the production of ozone-depleting substances like CFCs," (3) effectively curbing their harmful effects on the ozone layer. In contemporary times, UNEP's mission has expanded to align with the 17 Sustainable Development Goals (SDGs)

established in 2015 as part of the 2030 Agenda for Sustainable Development. These goals encompass a wide array of global challenges, including Clean Water and Sanitation, Good Health and Well-Being, and Climate Action. UNEP plays a crucial role in coordinating environmental activities across nations, assisting countries in adopting and implementing sustainable practices, and providing comprehensive assessments of global environmental conditions.

Beyond its coordinating efforts, UNEP is responsible for setting the agenda for international environmental action and developing guidelines and protocols aimed at mitigating environmental damages. The organization engages in extensive research and analysis, helping to fund and publish various assessments and reports that address critical issues such as both the impacts of armed-conflict and acid rain on ecosystems, public health, and agriculture. It is funded through a combination of assessed contributions, voluntary contributions, and earmarked funding from various sources. A portion of UNEP's funding comes from assessed contributions made by UN member states. These contributions are mandatory and are calculated based on each country's gross national income (GNI) and other economic indicators. However, these contributions make up a mere 5% of UNEP's total funding, as it "relies on voluntary contributions for over 95 percent of its funding." (1) These voluntary funds are provided by member states, international organizations, private sector entities, non-governmental organizations (NGOs), and philanthropic foundations. Voluntary contributions often target specific projects, programs, or initiatives, allowing donors to align their funding with particular environmental priorities. Any financial resource allocated for a specific project or purpose as designated by the donor is referred to as Earmarked Funding. While earmarked funds can enhance project effectiveness, they can also lead to fluctuations in funding levels, depending on

donor priorities and commitments. Additionally, cooperation and partnership with other UN agencies can allow for compilation and redistribution of funds.

Topic A: Environmental Protection in Regions of Conflict

Introduction

The protection of the environment during armed conflict is a legal obligation that is governed by international law. The environment is considered a civilian object and is entitled to the same protection as civilians during armed conflict.¹ More often than not, armed conflicts lead to environmental destruction, contributing to the suffering of the already hurt local populations. Environmental destruction during conflicts leads to further loss of civilian life, food and water insecurity, and biodiversity loss that fuels the fire for future armed conflict. Furthermore, with armed conflict, states have grown weak in policy enforcement, which allows normal environmental regulations to be easily breached.



Despite its importance, the environment is often not considered when measuring the fatality of a war. War is instead measured in terms of dead and wounded soldiers, civilians, and

¹“Environmental Protection in Non-International Armed Conflicts: Finding the Way Forward | CEOBS.” CEOBS, 15 Mar. 2019,

destroyed cities and livelihoods. Many combat groups directly destroy the environment to gain an advantage over their adversaries. Over the years, parties in armed conflicts have polluted water, torched crops, cut down forests, poisoned soils, and killed animals to gain an advantage.² With these crimes on the environment, civilian populations are hurt further, threatening their health and survival. Environmental damage has been proven to increase civilian vulnerability for decades after initial armed conflicts.³

Despite the overall lack of attention given to protecting the natural environment, with recent developments in the Russia-Ukraine war, the need for environmental protection in armed



conflict is being pushed into mainstream media. In

March of 2022, Europe's largest nuclear plant,

Zaporizhzhia, was captured by Russian forces.⁴ The

plant's infrastructure has been damaged by heavy

shelling, increasing the chances of fires and

radioactive material leakage, putting Ukraine's 74,000

species of plants, animals, and fungi that are crucial to the greater European environment at risk.

⁵ As the UNEP, it is crucial that we take action against the silent victims of war and increase global awareness of issues such as Zaporizhzhia to civil society and the many parties who have direct or indirect influence on the issue. We must use our resources to foster research to better

² "International Day for Preventing the Exploitation of the Environment in War and Armed Conflict." United Nations, 6 Nov. 2006,

³ Harada, Kouji H et al. "Conflict-related environmental damages on health: lessons learned from the past wars and ongoing Russian invasion of Ukraine." *Environmental health and preventive medicine* vol. 27 (2022): 35.

⁴ "Fire Reported at Zaporizhzhia as Ukrainian Troops Advance toward Russia's Kursk Plant." *Ans.org*, 2024,

⁵ Early, Catherine. "Ukraine War Is Killing Wildlife." *Theecologist.org*, 12 Jan. 2023, theecologist.org/2023/jan/12/ukraine-war-killing-wildlife.

understand the topic so that there is an increase. evidence-based data to inform and enforce future policy decisions that are strongly implemented.

A History: An Issue Split Between International Humanitarian and Environmental Laws

As early as 1907, international organizations addressed armed conflicts' impact on the environment with the Hague Convention IV, which said the needless destruction of "the enemies property" was prohibited.⁶ However, it was not until the 1970s that anyone discoursed explicitly on the environment. This recognition came with the international effort to have the environment be viewed as something that needed to be protected. The 1977 Additional Protocol to the Geneva Conventions article 55 is about the "protection of the natural environment" in armed conflict.⁷ In



1994, The International Committee of the Red Cross (ICRC) compiled the Guidelines on the Protection of the Environment during Armed Conflict from a series of already established international rules, something spread and cited

by UNEP and the UN General Assembly.⁸ Despite the progress of these two rules in the second half of the 20th century, none of the guidelines set are binding or provide any structure or reason for UN member states to comply.

⁶ International Committee of the Red Cross. "Convention (IV) Respecting the Laws and Customs of War on Land and Its Annex: Regulations Concerning the Laws and Customs of War on Land. The Hague, 18 October 1907."

⁷ "Article 55 Protection of the Natural Environment." [icrc.org](https://www.icrc.org), 2023,

⁸ Confronting Conflict Pollution Principles for Assisting Victims of Toxic Remnants of War Harvard Law School International Human Rights Clinic Conflict and Environment Observatory. Sept. 2020.

The issue is further complicated because International Environmental Law (IEL) and International Humanitarian Law (IHL) differ.⁹ IHL is a set of laws establishing general principles regarding things protected from armed conflicts. At the same time, IEL is dedicated to environmental protection, regardless of whether an armed conflict causes harm. Despite these differences being seemingly negligible, there are large gaps between the two structures.

Furthermore, up to 160 million people live in areas under the direct or contested control of non-state armed groups (NSAG), with over 100 active worldwide.¹⁰ This statistic is important because most of the existing environmental protection laws against armed conflict only address conflicts



between two separate states, leaving Intra-states conflicts with NSAGs largely unaddressed.

While it is not unusual that NSAGs engage in humanitarian-friendly military operations according to the IHL regulations, they often ignore mandates set by the IEL¹¹. As mentioned before, the IHL does include obligations related to the environment for NSAGs. Still, those specific laws focus on the civilians living there — not the environment and the many animals that rely on it for survival.

⁹ van Steenberghe, Raphaël. "International Environmental Law as a Means for Enhancing the Protection of the Environment in Warfare: A Critical Assessment of Scholarly Theoretical Frameworks." *International Review of the Red Cross*, 1 Dec. 2023,

¹⁰ Stepputat, Finn. "How Non-State Armed Groups Engage in Environmental Protection | DIIS." *Www.diis.dk*, 24 Jan. 2023,

¹¹ Rushing, Elizabeth. "The NSAG Handbook: Helping Non-State Armed Groups Reduce Civilian Harm during Urban Warfare - Humanitarian Law & Policy Blog." *Humanitarian Law & Policy Blog*, 30 Mar. 2023,

Military Emissions

Armed conflict not only devastates the local areas where it occurs but also significantly contributes to environmental harm on a global scale, particularly in terms of CO₂ emissions. According to a groundbreaking 2022 mega-study by international experts at the Conflict and Environment Observatory, military activities account for an astonishing 5.5% of global greenhouse gas emissions, positioning them among the world's largest fuel consumers.¹² As significant as this figure may seem, it is likely an underestimation of the true impact. The data published by some militaries is often unreliable or incomplete, as emissions from military operations abroad were excluded from international climate agreements like the 2015 Paris Accords and the 1997 Kyoto Protocol. This exclusion was justified on the grounds that such disclosures could compromise national security.¹³ Furthermore, with reports that "the U.S. Military Emits more carbon dioxide in the atmosphere than entire countries like Portugal or Denmark," and other countries not far behind, the world's largest militaries such as the U.S., China, India, and Russia are under scrutiny by academics and climate activists to have more transparency with their carbon emission.¹⁴

Despite the absence of formal legislation or international recognition of military-related CO₂ emissions, some militaries, such as the U.S., have acknowledged their role as significant carbon emitters. In recent years, they

¹² CEO Admin. "War on Greenhouse Gas Emissions Has Military Blind Spots," *Inside Climate News*, 18 Jan. 2022.

¹³ Kehrt, Sonner. "The U.S. Military Emits More Carbon Dioxide into the Atmosphere than Entire Countries like Denmark or Portugal." *Inside Climate News*, 18 Jan. 2022.

¹⁴ *ibid.*



have taken steps toward adopting more environmentally friendly practices, signaling a growing commitment to reducing their environmental impact.

According to the U.S. Defense Logistics Agency, which manages oil procurement, the U.S. military purchased 84 million barrels of oil in 2022—a reduction of nearly 15 million barrels compared to 2018. This shift contributed to a decrease in emissions, with the military emitting 3 million tons less than the 51 million tons recorded the previous year, in 2021. Additionally, the growing reliance on drones in conflicts has played a role in reducing global military emissions.¹⁵

Nevertheless, despite this progress, countries like the U.S. currently do not have troops engaged in any major wars. Carbon emissions surge dramatically whenever a nation's military becomes involved in active conflict. A report by Lennard de Klerk estimated that the war in Ukraine has caused a net increase of 120 million tonnes of greenhouse gases in just the first

twelve months—an amount equivalent to the combined annual emissions of Syria, Singapore, and Syria's total output.¹⁶ Furthermore, on October 7th alone, the Hamas attack on Israel emitted around 646 metric tons of carbon dioxide. Then, in just the first two months of the war, Israel's retaliatory invasion of Gaza emitted approximately 281,000 metric tons of carbon dioxide



¹⁵ Mcfarlane, Sarah, and Valerie Volcovici. "Insight: World's War on Greenhouse Gas Emissions Has a Military Blind Spot." Reuters, 10 July 2023,

¹⁶ Mcfarlane, Sarah, et al. "Exclusive: Accounting for War - Ukraine's Climate Fallout." Reuters, 6 June 2023,

itself, greater than the annual emissions of 20 individual countries and territories.¹⁷ These figures account only for the immediate emissions from sources such as aircraft, tanks, rockets, and artillery. However, long-term reconstruction efforts are projected to amplify these emissions by up to tenfold.

Despite the recent attention garnered by military carbon emissions, substantial action to address the issue remains limited. While some countries have set individual goals and plans to reduce their carbon footprints, such as the U.S. Department of Defense's \$248 million partnership with Duke Energy to supply five major military installations in the Carolinas with clean energy, comprehensive international measures are still lacking.¹⁸ Despite these improvements, they fall far short of what is needed. As the delegation forming UNEP, it is nearly impossible to hold countries accountable for their military emissions without accurate and transparent reporting. Moreover, comprehensive legislation to address this critical issue remains urgently needed.

Recent Developments

The environmental impact of armed conflict is increasingly gaining recognition on the global stage. Notably, the International Law Commission (ILC), another UN body, has made significant strides in this area. On December 7, 2022, the United Nations General Assembly adopted the ILC's proposal of 27 legal principles on the Protection of the Environment in Relation to

¹⁷Neimark, Benjamin, et al. "A Multitemporal Snapshot of Gre Israel-Gaza Conflict." Ssrn.com, 5 Jan. 2024,

¹⁸ "DOD Forges Clean Energy Pathway with Carbon Pollution of Defense, 2024,



Armed Conflicts (PERAC).¹⁹ However, these principles are not seen as miracle solutions that will immediately resolve the issue, particularly because they are not legally binding. Instead, many experts hope they will elevate the profile of the issue and help prioritize environmental concerns after conflicts end, representing a new way of thinking about the entire lifecycle of conflict.²⁰ They hope PERAC will be implemented through national legislation in different countries and outreach with non-state armed groups.

Some key principles, such as Principle 11, guide states to "take appropriate measures ensuring that business enterprises operating in or from their territories... can be held liable for harm caused by them to the environment...in an area affected by an armed conflict."²¹ This is a significant development as it expands the number of parties held accountable. An example of this would be sourcing the illegal exploitation of timber, which has been a serious problem and is known to rise heavily during violent conflicts. This is common in states heavily involved in nearby conflict, such as those in Belarus and Russia, whose timber is automatically classified as "conflict timber" by many international environmental organizations.²² Illegal timber is known to heavily damage local forests and accelerate climate change, keeping forested countries locked in cycles of poverty and corruption.

The new PERAC framework is more comprehensive than previous legal principles, addressing critical topics such as the use of natural resources, the rights of Indigenous peoples, corporate conduct in conflict zones, and the environmental impacts of war on marine areas, which previously received little protection. However, the principles remain non-binding, and

¹⁹ Kaminski, Isabella. "War and the Environment: UN Adopts New Principles." *Dialogue Earth*, 19 Jan. 2023,

²⁰ *ibid.*

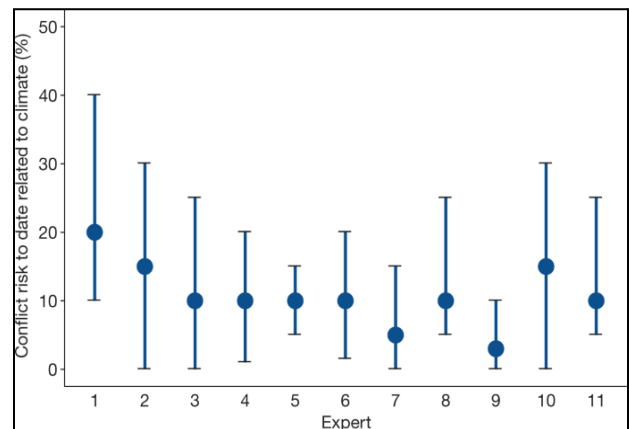
²¹ "The Protection of the Natural Environment under International Humanitarian Law: The ICRC's 2020 Guidelines." *International Review of the Red Cross*, Dec. 2023,

²² Mortier, Thomas, et al. "A Framework for Tracing Timber Following the Ukraine Invasion." *Nature Plants*, vol. 10, no. 3, 1 Mar. 2024, pp. 390–401,

there is no formal body to enforce or monitor their implementation. Despite these limitations, PERAC represents the most significant progress made to date. It is imperative to build on this momentum and address the issue further while it continues to attract international attention.

Possible solutions and recent debates

In 2016, UNEP positioned itself as a vital forum for states, international organizations, and non-governmental organizations to address environmental protection in areas impacted by armed conflict. This resolution reframed environmental protection in conflict zones as not just a legal issue but also a political and



humanitarian one, propelling it further into the global mainstream. It also emphasized the importance of analyzing how environmental factors uniquely affect women and displaced populations, broadening the scope of the discussion.

In this new forum provided by UNEP, multiple environmental parties have been meeting frequently to pass new resolutions. In a meeting, the third since its founding in December 2017, the assembly adopted a resolution to address pollution resulting directly and indirectly from armed combat.²³ Nevertheless, this resolution has faced criticism for being insufficient, as it fails to address scorched earth policies—a military strategy involving the deliberate destruction of resources and property to deny their use to the enemy. Historical examples include the Union's

²³ Chapter vi Protection of the Environment in Relation to Armed Conflicts.

use of this strategy against the Confederacy during the American Civil War and the British employing it during the Gulf War against Iraq.

Armed conflict, with its far-reaching effects, often severely impacts the environment, leading to food and water insecurity, further loss of civilian life, and biodiversity degradation—factors that



can ignite future conflicts. Historically, international forums addressing the environmental consequences of armed conflict have struggled to tackle the issue's full complexity. While recent attention and the establishment of dedicated forums are steps in the right direction, much more needs to be done. Given the multifaceted nature of armed conflict, the

solutions to mitigate its environmental impact must also be comprehensive. Effective environmental resolutions should address the deliberate destruction of ecosystems by both non-state armed groups (NSAGs) and states, as well as the many forms of environmental exploitation and the far-reaching effects of the political instability caused by conflict.

The UNEA should expand the scope of the current International Humanitarian Law (IHL) to address environmental destruction and the evolving nature of many non-international conflicts. This includes revisiting and modernizing past guidelines adopted by various international organizations, such as the 1994 ICRC guidelines, to better reflect the complexities of contemporary armed conflicts and clarify UNEP's role in conflict-related decision-making.²⁴

²⁴ As of now, UNEP can not take a formal stance on conflict prevention when it comes to the environment as a result of conflicting instructions from the general assembly. General Assembly resolution 53/242, States UNEP “should not become involved in conflict identification, prevention or resolution” while UN resolution 57/337 called upon all United Nations organizations to address conflict prevention solutions with respect to their respective fields.

Urgent action is essential, as climate-related issues have been a primary factor in approximately 12% of armed conflicts over the past century. Moreover, poor climate conditions significantly increase the likelihood of conflicts reigniting, making them twice as likely to relapse within five years of their initial resolution. Addressing these pressing issues cannot wait.²⁵



Bloc Positions

Sovereignty-First Bloc

This bloc represents countries that prioritize national sovereignty and resist international oversight or mandates. They argue that individual nations should have the freedom to set their own standards for climate action, tailored to their specific needs and circumstances. Some members may outright dismiss the urgency of climate change or view environmental policies as secondary to national interests. Countries like Russia, India, and Brazil often emphasize autonomy in international negotiations and may align with this bloc. This bloc advocates for national-level decision-making and opposes binding international frameworks, emphasizing the importance of respecting each country's right to chart its own path on environmental and climate issues.

Climate Leadership Bloc

This bloc comprises nations committed to addressing the environmental impacts of armed conflict through international cooperation and binding agreements. They recognize the

²⁵ “Does Climate Change Cause Armed Conflict?” Stanford.edu, Stanford University, 2019,

importance of tackling the issue comprehensively and are prepared to take a leading role in global efforts. Countries such as Germany, Sweden, and France, along with climate-vulnerable nations like Fiji, Maldives, and Rwanda, are likely to champion this bloc. This group pushes for robust international legislation, funding mechanisms, and immediate action to mitigate the environmental consequences of conflict and promote sustainable recovery.

Military-Focused Countries

This bloc includes countries that deny or downplay the significance of climate change or its intersection with armed conflict. They prioritize military operations and national security over environmental considerations, viewing climate policies as a potential hindrance to achieving strategic goals. Countries like Saudi Arabia, Turkey, and China may align with this bloc, prioritizing economic and military objectives over environmental concerns.

- **Position:**

The bloc resists efforts to impose international environmental standards, particularly those that could restrict military operations or undermine national priorities.

Development-Centric Bloc

These nations prioritize economic and infrastructure development, often arguing that immediate needs like poverty alleviation and post-conflict rebuilding outweigh environmental concerns.

They are open to environmental action but stress the importance of balancing it with development goals. Countries such as Nigeria, Indonesia, Pakistan, and post-conflict nations like Afghanistan or Iraq may belong to this bloc. They advocate for flexible implementation

timelines, additional international support, and a development-first approach to balancing economic growth and environmental protection.

Vulnerable Climate

This bloc includes countries that are particularly susceptible to the environmental and humanitarian impacts of armed conflict. They lack the capacity to address these challenges independently and see robust international agreements as critical to their survival and stability. Nations like Sudan, Yemen, Somalia, Haiti, and small island states such as Tuvalu and Kiribati are likely members of this bloc. They push for binding international legislation, financial support for recovery programs, and accountability mechanisms for environmental destruction during conflict.

Integrated Climate-Security Bloc

This bloc emphasizes the connection between environmental protection and global security, advocating for a holistic approach that integrates climate resilience into peacebuilding and conflict prevention strategies. Countries like Norway, Canada, and Netherlands, along with organizations such as the European Union, are key proponents of this bloc. This group promotes funding for green reconstruction, the incorporation of environmental considerations into peacekeeping missions, and the development of international frameworks that address both security and environmental challenges.

QARMA (Questions a Resolution Must Answer)

1. How is it possible to enforce both NSAGs and Nation States to comply with international environmental protection legislation for armed conflicts. Is it necessary to have a regulatory framework established to govern nations? If so, what would it look like?
2. How is it possible to hold NSAGs accountable to both IHL and IEL when it comes to armed conflicts impact on the environment? What are the different types of challenges in accounting for both NSAGs and Nation states when addressing the issue at hand?
3. How does your proposed proposal look on the fiscal side of things? How much does it cost? Furthermore, how much money is allocated to each part of your plan?
4. How is it possible to ensure that there is continued research and development on the topic and that it stays in the mainstream? What are your long term plans?

Citations

- “Article 55 Protection of the Natural Environment.” *Icrc.org*, 2023,
- CEO Admin. “War on Greenhouse Gas Emissions Has Military Blind Spot.” *CEO North America*, 14 July 2023,
- Chapter vi Protection of the Environment in Relation to Armed Conflicts.*
- Confronting Conflict Pollution Principles for Assisting Victims of Toxic Remnants of War*
Harvard Law School International Human Rights Clinic Conflict and Environment
Observatory. Sept. 2020.
- “DOD Forges Clean Energy Pathway with Carbon Pollution-Free Electricity Contract.” *U.S. Department of Defense*, 2024,
- “Does Climate Change Cause Armed Conflict?” *Stanford.edu*, Stanford University, 2019,
- Early, Catherine. “Ukraine War Is Killing Wildlife.” *Theecologist.org*, 12 Jan. 2023,
- “Environmental Protection in Non-International Armed Conflicts: Finding the Way Forward I
CEOBS.” *CEOBS*, 15 Mar. 2019,

“Fire Reported at Zaporizhzhia as Ukrainian Troops Advance toward Russia’s Kursk Plant.”

Ans.org, 2024,

International Committee of the Red Cross. “Convention (IV) Respecting the Laws and Customs of War on Land and Its Annex: Regulations Concerning the Laws and Customs of War on Land. The Hague, 18 October 1907.” *Icrc.org*, 2023,
ihl-databases.icrc.org/en/ihl-treaties/hague-conv-iv-1907.

“International Day for Preventing the Exploitation of the Environment in War and Armed Conflict.” *United Nations*, 6 Nov. 2006,

www.un.org/en/observances/environment-in-war-protection-day.

Kaminski, Isabella. “War and the Environment: UN Adopts New Principles.” *Dialogue Earth*, 19

Kehrt, Sonner. “The U.S. Military Emits More Carbon Dioxide into the Atmosphere than Entire Countries like Denmark or Portugal.” *Inside Climate News*, 18 Jan. 2022,

Mcfarlane, Sarah, et al. “Exclusive: Accounting for War - Ukraine’s Climate Fallout.” *Reuters*, 6 June 2023,

Mcfarlane, Sarah, and Valerie Volcovici. “Insight: World’s War on Greenhouse Gas Emissions Has a Military Blind Spot.” *Reuters*, 10 July 2023,

Mortier, Thomas, et al. “A Framework for Tracing Timber Following the Ukraine Invasion.” *Nature Plants*, vol. 10, no. 3, 1 Mar. 2024, pp. 390–401,

Neimark, Benjamin, et al. “A Multitemporal Snapshot of Greenhouse Gas Emissions from the Israel-Gaza Conflict.” *Ssrn.com*, 5 Jan. 2024,

Rushing, Elizabeth. “The NSAG Handbook: Helping Non-State Armed Groups Reduce Civilian Harm during Urban Warfare - Humanitarian Law & Policy Blog.” *Humanitarian Law & Policy Blog*, 30 Mar. 2023,

Stepputat, Finn. “How Non-State Armed Groups Engage in Environmental Protection | DIIS.”

Www.diis.dk, 24 Jan. 2023,

“The Protection of the Natural Environment under International Humanitarian Law: The ICRC’s 2020 Guidelines.” *International Review of the Red Cross*, Dec. 2023,

“The Protection of the Natural Environment under International Humanitarian Law: The ICRC’s 2020 Guidelines.” *International Review of the Red Cross*, 1 Dec. 2023,

van Steenberghe, Raphaël. “International Environmental Law as a Means for Enhancing the Protection of the Environment in Warfare: A Critical Assessment of Scholarly Theoretical Frameworks.” *International Review of the Red Cross*, 1 Dec. 2023,

Topic B: Acid Rain and Air Quality Management

Overview of the Topic

Acid rain refers to precipitation that contains elevated levels of sulfuric and nitric acids, which are primarily the result of the emission of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) into the atmosphere. These harmful pollutants are released through various human-directed activities, including industrial processes such as coal combustion, oil refining, and manufacturing, as well as from vehicle emissions and the burning of fossil fuels. Natural disasters, such as volcanic eruptions and wildfires, can also contribute to the levels of these acids in the atmosphere, but human activities have significantly increased their concentrations. Once in the atmosphere, these primary pollutants undergo complex chemical reactions, often facilitated by sunlight, leading to the formation of sulfuric and nitric acids. These acids then return to the Earth’s surface in the form of rain, snow, fog, or dust, which is collectively referred to as acid deposition, or acid rain.

The fallout from acid rain can have detrimental effects on natural ecosystems, human health, and infrastructure. In natural ecosystems, acid rain “removes minerals and nutrients from the soil that trees need to grow,” thus “dead or dying trees are a common sight in areas affected by acid rain.” (1) Additionally, many aquatic organisms are particularly sensitive to changes in pH (lower values of pH indicate higher acidity) and even slight alterations can disrupt their reproductive cycles and overall health. Human health is another area of concern, as the pollutants that lead to acid rain can also contribute to respiratory issues and other health problems. For instance, sulfur dioxide and nitrogen oxides are known to exacerbate conditions such as asthma and bronchitis. Communities situated near industrial facilities may experience higher levels of these pollutants, leading to increased health risks for their populations.

Furthermore, acid rain poses a significant threat to infrastructure. The acidic nature of the precipitation can corrode buildings, monuments, and other structures, and is responsible for the deterioration of limestone and marble buildings and monuments. (2) Over time, this degradation can lead to costly repairs and maintenance, as well as a decrease in the aesthetic value of historical landmarks and public spaces.

Importance and Relevance

The issue of acid rain and air quality management is critical as it intersects with public health, environmental sustainability, and economic viability. As climate change becomes increasingly urgent, managing air quality is essential for sustainable development.

Summary of Past Resolutions and Analysis of Effectiveness

In the past, various resolutions and initiatives have intended to combat this pressing issue. The 1979 Convention on Long-Range Transboundary Air Pollution (CLRTAP), signed in 1979, aimed to reduce and control emissions of pollutants that can travel long distances across borders. It “ensured that scientific evidence and technical expertise directly informed political negotiations, policy commitments and national decision-making.” (3) The Protocols that followed, particularly the 1985 Helsinki Protocol and the 1994 Sofia Protocol, established binding emission reduction commitments for participating countries. These initiatives led to significant reductions in sulfur dioxide emissions in many regions. For example, the U.S. and Canada implemented the Acid Rain Program, resulting in a 50% reduction in SO₂ emissions from 1980 to 2010. (4) Since CLRTAP, various conferences have been held to recognize the need for global cooperation with regards to acid rain. The 1992 UN Conference on Environment and Development (Earth Summit) influenced many nations to incorporate air quality considerations into their national policies. (5) Similarly, The 2012 UN Conference on Sustainable Development (Rio+20) reaffirmed the importance of sustainable development and highlighted the need for integrated approaches to environmental management, including air quality. (6)

UNEP’s periodic Global Environment Outlook (GEO) reports have consistently highlighted the impacts of air pollution, including acid rain, and the need for comprehensive management strategies. The reports “provide an assessment of the current state of the environment, an evaluation of the effectiveness of policies and actions taken to address environmental issues, and projections of future environmental trends” (7) UNEP has been successful in fostering international cooperation on air quality issues.

The CLRTAP and its protocols represent a significant achievement in multilateral environmental governance. Collaborative efforts have led to a reduction in emissions in many regions, showcasing the importance of joint action in addressing transboundary pollution. However, the distinction between binding agreements (e.g., the Montreal Protocol) and non-binding resolutions (e.g., the outcomes of Rio+20) is crucial in evaluating effectiveness. Binding commitments tend to yield more concrete results, as they provide legal obligations for countries. In contrast, non-binding agreements often rely on voluntary compliance, which can lead to uneven implementation and progress.

Current Situation

As of 2024, the global situation regarding acid rain and air management remains complex and multifaceted. While many developed nations have successfully reduced emissions of sulfur dioxide and nitrogen oxides through regulatory measures and technological advancements, challenges persist in both developed and developing countries. In Europe and North America, emission levels have significantly decreased over the past few decades, largely due to stringent environmental regulations and the implementation of clean air technologies. However, regions in East Asia, particularly China and India, face ongoing air quality challenges. Rapid industrialization and urbanization have resulted in high levels of SO₂ and NO_x emissions, contributing to persistent acid rain and air pollution issues. In these areas, coal-fired power plants are a major source of emissions, as they “produce fine particulate matter (PM_{2.5}) which rises into the air and can affect people’s health.” [\(8\)](#)

One of the most significant debates surrounding air management relates to the balance between economic growth and environmental protection. Developing nations often prioritize

economic development, viewing stringent air quality regulations as potential impediments to growth. (9) The reliance on fossil fuels, particularly coal, remains prevalent due to their affordability and availability, leading to high emissions of sulfur dioxide and nitrogen oxides. This has led to tensions with environmental advocates, who argue for immediate action to mitigate acid rain and pollution. Addressing the challenges associated with acid rain and air management requires integrated policy approaches that balance economic and environmental interests. Policymakers must develop comprehensive strategies that incorporate air quality management into national development plans. Some experts call this Green Finance, which intends to “support the economic activities of environmental improvement, climate change, and efficient use of resources.” (10) By emphasizing sustainable economic growth, countries can work toward cleaner industries without sacrificing development goals.

Another ongoing controversy is the question of responsibility for emissions. Developed nations historically contributed the most to acid rain through industrial emissions, yet many of the negative impacts are now felt disproportionately in developing countries, where the capacity for pollution management is often limited. This raises ethical concerns about the responsibilities of industrialized nations to assist developing countries in achieving cleaner air, as emphasized by debates around climate justice and equitable resource distribution. (11) Enhancing international cooperation is vital for effectively addressing transboundary air pollution. Countries should engage in dialogues that prioritize mutual interests and acknowledge historical emissions responsibilities. Global frameworks, such as the Paris Agreement (12), can serve as platforms for collaboration, enabling nations to set common goals and share resources and technologies.

The effectiveness of technological advancements in reducing emissions has similarly sparked debate over the best methods for managing air quality. While innovations such as carbon

capture and storage (CCS) (13) and improved filtration technologies have shown promise, some environmentalists contend that without stringent regulations, technological solutions may be insufficient to address the scale of the problem, particularly in rapidly industrializing regions. (14)

Investing in clean technologies and infrastructure is essential for reducing emissions. Developed countries can play a pivotal role by providing financial and technical support to developing nations. This is called Climate Finance, and is “essential to finance action where private finance is not yet available or that would not normally attract private finance.” (15) This could include investments in renewable energy sources, pollution control technologies, and training programs to build local capacity. Public perception and engagement also play a critical role in the ongoing debates. While there is growing awareness of air pollution’s health impacts, misinformation and lack of access to information can hinder public support for necessary policy changes. The role of media and advocacy groups in educating the public and influencing policy decisions remains a contentious topic, with debates about how best to mobilize citizen action for environmental causes. Public engagement campaigns can significantly influence policy outcomes. Governments and NGOs work together to educate communities about the impacts of acid rain and air pollution on health and the environment. Empowering citizens to advocate for cleaner air can lead to increased pressure on policymakers to take action. Public participation “increases the legitimacy of decisions, and helps ensure that policy-makers have valuable local knowledge.” (16)

Strengthening regulatory frameworks and ensuring their enforcement is critical for effective air management. Governments must commit to monitoring air quality, implementing penalties for

non-compliance, and promoting transparency in environmental governance. Engaging local communities in monitoring efforts can also enhance accountability.

Bloc Positions

Developed nations generally support stringent regulations and international cooperation to combat acid rain and improve air quality. The European Union has established comprehensive air quality standards and directives, actively promoting initiatives to reduce emissions from industrial sources, transportation, and agriculture. The EU's Green Deal aims to achieve climate neutrality by 2050, which includes addressing air pollution as a critical component. [\(17\)](#) The United States has also implemented significant measures, such as the Clean Air Act and the Acid Rain Program, which have led to substantial reductions in sulfur dioxide and nitrogen oxides emissions. These nations advocate for science-based policymaking and are often more willing to engage in binding international agreements to hold themselves accountable for emissions reductions.

Emerging economies face a dual challenge of economic growth and environmental protection. Countries like China and India recognize the need to address air pollution due to its severe health impacts and public outcry. However, these nations often prioritize industrial growth, leading to reluctance in committing to stringent regulations that might hinder economic development. China has made recent strides in air quality management by implementing stringent regulations and investing in renewable energy, but challenges remain in enforcement and compliance. [\(18\)](#) India's position reflects similar tensions, where ambitious targets for emissions reductions coexist with the need for economic expansion. [\(19\)](#) These countries often call for developed nations to take greater responsibility for their historical emissions while

seeking support for technology transfer and financial assistance. Many developing countries often struggle with limited resources and governance capacity, making effective air quality management challenging. These nations may prioritize economic development and view stringent air quality regulations as potential barriers. However, there is a growing recognition of the health impacts of pollution and the need for action. Many countries in Africa advocate for international support in building capacity and improving infrastructure to manage air quality effectively. They often emphasize the principle of common but differentiated responsibilities, calling for developed nations to provide financial and technological assistance to help them tackle air pollution. (20)

Questions a Resolution Must Answer

1. How can international cooperation be strengthened to address acid rain and air quality?
2. What specific targets should be set for emissions reductions?
3. How can we ensure that developing countries receive adequate support to manage air quality effectively?
4. What role should technology play in monitoring and addressing air quality issues?

Addressing the issue of acid rain and air quality management is essential for protecting public health, preserving ecosystems, and achieving sustainable development. The international community must work collaboratively to build on past successes and implement effective strategies to mitigate this global challenge.

Citations

- (1) “Effects of Acid Rain | US EPA.” *Environmental Protection Agency (EPA)*, 7 May 2024, <https://www.epa.gov/acidrain/effects-acid-rain>. Accessed 25 September 2024.
- (2) “Acid rain | Definition, Causes, Effects, & Formulas.” *Britannica*, 6 August 2024, <https://www.britannica.com/science/acid-rain>. Accessed 2 October 2024.
- (3) “Why we need a global convention to eradicate air pollution.” *Clean Air Fund*, 24 August 2022, <https://www.cleanairfund.org/news-item/global-convention-air-pollution/>. Accessed 2 October 2024.
- (4) “The US Environmental Protection Agency's Acid Rain Program.” *Resources for the Future*, <https://www.rff.org/publications/issue-briefs/the-us-environmental-protection-agencys-acid-rain-program/>. Accessed 2 October 2024.
- (5) Kulik, Rebecca M. “United Nations Conference on Environment and Development (UNCED) | History & Facts.” *Britannica*, 5 September 2024,

<https://www.britannica.com/event/United-Nations-Conference-on-Environment-and-Development>. Accessed 2 October 2024.

- (6) “United Nations Conference on Sustainable Development, Rio+20 :.. Sustainable Development Knowledge Platform.” *Sustainable Development Goals*, <https://sustainabledevelopment.un.org/rio20>. Accessed 2 October 2024.
- (7) “Global Environment Outlook (GEO).” *UNEP*, <https://www.unep.org/geo/>. Accessed 2 October 2024.
- (8) Ayshford, Emily. “How China's Air Pollution Affects the Health of Residents in South Korea | Office of Science, Innovation, National Laboratories, and Global Initiatives.” *Office of Science, Innovation, National Laboratories, and Global Initiatives at the University of Chicago*, 24 March 2023, <https://sing.uchicago.edu/2023/03/24/how-chinas-air-pollution-affects-the-health-of-residents-in-south-korea/>. Accessed 2 October 2024.
- (9) “Air pollution kills – Evidence from a global analysis of exposure and poverty.” *World Bank Blogs*, 18 May 2022, <https://blogs.worldbank.org/en/developmenttalk/air-pollution-kills-evidence-global-analysis-exposure-and-poverty>. Accessed 2 October 2024.
- (10) “Development of Environmental Action Plans for Adaptation to Climate Change: A Perspective of Air Quality Management.” *Aerosol and Air Quality Research*, 17 March 2023, <https://aaqr.org/articles/aaqr-22-11-0a-0377>. Accessed 2 October 2024.
- (11) Meng, Bo. “Developing countries’ responsibilities for CO2 emissions in value chains are larger and growing faster than those of developed countries.” *sciencedirect.com*, 17 February 2023, <https://www.sciencedirect.com/science/article/pii/S2590332223000349#:~:text=Develope>

d%20and%20developing%20countries'%20shares,%2C%20and%20India%20(3.1%25).

Accessed 2 October 2024.

- (12) "Process and meetings The Paris Agreement." *UNFCCC*,
<https://unfccc.int/process-and-meetings/the-paris-agreement>. Accessed 2 October 2024.
- (13) "What is carbon capture and storage? | CCS explained." *National Grid*, 26 March 2024,
<https://www.nationalgrid.com/stories/energy-explained/what-is-ccs-how-does-it-work>.
Accessed 2 October 2024.
- (14) Söderholm, Patrik. "The green economy transition: the challenges of technological change for sustainability - Sustainable Earth Reviews." *Sustainable Earth Reviews*, 22 June 2020,
<https://sustainableearthreviews.biomedcentral.com/articles/10.1186/s42055-020-00029-y>
. Accessed 2 October 2024.
- (15) "Why finance climate action? | United Nations." *the United Nations*,
<https://www.un.org/en/climatechange/why-finance-climate-action>. Accessed 2 October 2024.
- (16) "Making space: how public participation shapes environmental decision-making." *Stockholm Environment Institute*,
<https://www.sei.org/wp-content/uploads/2019/01/making-space-how-public-participation-shapes-environmental-decision-making.pdf>. Accessed 2 October 2024.
- (17) "The European Green Deal - European Commission." *European Commission*,
https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en. Accessed 2 October 2024.
- (18) Maizland, Lindsay, and Yanzhong Huang. "China's Fight Against Climate Change and Environmental Degradation." *Council on Foreign Relations*, 19 May 2021,

<https://www.cfr.org/background/china-climate-change-policies-environmental-degradation>. Accessed 2 October 2024.

- (19) Anderson, Kara. "Why is Climate Change a Huge Challenge for India." *Greenly*, 21 June 2023,
<https://greenly.earth/en-us/blog/ecology-news/why-is-climate-change-a-huge-challenge-for-india>. Accessed 2 October 2024.

- (20) "The State of Climate Finance in Africa: Climate Finance Needs of African Countries." *Climate Policy Initiative*,
<https://www.climatepolicyinitiative.org/wp-content/uploads/2022/06/Climate-Finance-Needs-of-African-Countries-1.pdf>. Accessed 2 October 2024.

Citations for Introduction

- (1) "How is UNEP funded." *UNEP*,
<https://www.unep.org/about-un-environment/funding-and-partnerships/funding-facts>.
Accessed 25 September 2024.
- (2) "The Vienna Convention for the Protection of the Ozone Layer | Ozone Secretariat." *Ozone Secretariat*, <https://ozone.unep.org/treaties/vienna-convention>. Accessed 25 September 2024.
- (3) "A class of ozone-depleting chemicals is declining, thanks to the Montreal Protocol." *NOAA Research*, 13 June 2024,
<https://research.noaa.gov/2024/06/13/a-class-of-ozone-depleting-chemicals-is-declining-thanks-to-the-montreal-protocol/>. Accessed 25 September 2024

(4) Weiss, Edith Brown, and Mostafa K. Tolba. "Vienna Convention for the Protection of the Ozone Layer." *United Nations - Office of Legal Affairs*,

<https://legal.un.org/avl/ha/vcpol/vcpol.html>. Accessed 25 September 2024.