

*Law Without Accountability: The Continual Failure of Wartime Environmental Law from
Vietnam to Ukraine*

Part I: Law Without Accountability

The modern effort to protect the environment during armed conflict emerged largely as a consequence of the Vietnam War. While earlier wars had caused considerable damage to environments—mainly as collateral damage—, Vietnam revealed a new level of intentionality in the way militaries engaged with nature. As environmental historians such as David Zierler and Emmanuel Kreike have shown, the Vietnam War marked a moment when nature was no longer merely damaged as a byproduct of combat but deliberately altered as part of military strategy. Forests, croplands, and watersheds were not caught in the crossfire, they were intentionally modified or destroyed with the purpose of exposing enemy movements, denying resources, and reshaping civilian life to grant a military an advantage over the other. By the late 1960s, American military planners treated ecosystems as part of the battlefield itself. This marked an important turning point in the relationship between warfare and the environment.

Environmental destruction in Vietnam was systematic and openly acknowledged. Programs such as Operation Ranch Hand used chemical herbicides to defoliate forests and destroy crops, while research initiatives like Operations Sherwood Forest—where the United States Forest Service experimented with forest-burning techniques¹—and Pink Rose—serving as a successor to Sherwood Forest—explored whether entire jungle ecosystems could be dried and ignited through chemical and incendiary techniques—through weapons such as napalm or defoliants.² These efforts reflected a strategic philosophy in which environmental modification was seen as a tool for counterinsurgency purposes. As historians of the war have noted, Vietnam was a moment when the environment was no longer merely damaged by war but actively

¹ United States Department of Agriculture., *Forest Fire as a Military Weapon*, 3. 1970.

² Mutch, et. al., Pgs. 3, 111

weaponized and targeted by policymakers.³ The language of ecocide, which emerged during this period, reflected growing recognition that ecosystems themselves were becoming targets.⁴

The international legal response to Vietnam reflected this growing awareness. In the 1970s, states adopted new treaties aimed at limiting environmental harm during armed conflict. The ENMOD⁵ Convention prohibited the hostile manipulation of environmental processes, while Additional Protocol I to the Geneva Conventions restricted methods of warfare expected to cause widespread, long-term, and severe damage to the natural environment.⁶ Scholars such as Michael Bothe and Carl Bruch have stressed that these instruments represented a significant conceptual shift within international humanitarian law, as they explicitly recognized the environment as deserving protection beyond its immediate value to civilian populations.⁷

Despite this progress, the legal framework that emerged after Vietnam contained serious limitations. The standards used to define illegal environmental harm were exceptionally demanding.⁸ Damage had to be widespread, long-term, and severe simultaneously, a threshold that proved difficult to meet in practice.⁹ Katherine Kelly's analysis of the 1991 Gulf War demonstrates that even catastrophic environmental destruction could fall outside these legal definitions, revealing that post-Vietnam treaties were poorly suited for enforcement.¹⁰ The Rome Statute of the International Criminal Court further reinforced this narrow approach by requiring

³ Zierler, D., *The Invention of Ecocide*, Pg. 3

⁴ The New York Times, February 2, 1970. Pg. 38.

⁵ United Nations, Convention on the prohibition of military or any other hostile use of environmental modification techniques. 1976.

⁶ United Nations, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1). 1977

⁷ Bothe, et. al., 2010. Pgs. 573-575.

⁸ Ibid. Pgs 575-576.

⁹ Additional Protocol 1. Articles 33, 55.

¹⁰ Kelly, K., 1991. Pgs. 934, 945.

that environmental damage also be clearly excessive in relation to anticipated military advantage.¹¹

Post-Vietnam conflicts highlight how this framework operates in practice. Adam Roberts' study of the Gulf War shows that Iraq's deliberate destruction of Kuwait's oil fields caused unprecedented environmental harm, yet resulted in no criminal prosecution.¹² Similarly, assessments by the United Nations Environment Programme document extensive contamination, ecosystem damage, and long-term health risks in conflicts such as Kosovo¹³, Lebanon¹⁴, Gaza, and Ukraine¹⁵, while international courts largely remain silent on questions of legal responsibility. In these cases, environmental harm is acknowledged and studied, but rarely treated as a violation demanding accountability.

This persistent gap between legal principle and enforcement reflects deeper structural limitations within international institutions. Eliana Cusato has argued that the United Nations Security Council operates according to a "logic of exception," recognizing environmental harm while avoiding enforcement when it conflicts with political interests.¹⁶ At the same time, scholars such as Mark Nevitt and Janie Clark have shown that international legal frameworks remain deeply anthropocentric¹⁷, prioritizing human casualties and immediate military outcomes over ecological systems that may take decades to recover.¹⁸ Environmental harm, especially when it unfolds slowly, fits poorly within courts designed to adjudicate discrete acts of violence.¹⁹

¹¹ International Criminal Court, Rome Statute Article 8(2)(b) (IV). 1998.

¹² Roberts, A., 1992. Pg. 550.

¹³ United Nations Environment Programme, 1999.

¹⁴ United Nations Environment Programme, 2007.

¹⁵ United Nations Environment Programme, 2024.

¹⁶ Custao, E., 2019, Pg. 78.

¹⁷ Nevitt, M., 2024, Pg. 1365.

¹⁸ Clark, J., 2025, Pg. 3.

¹⁹ Blake, L., 2015, Pg. 158.

Although Vietnam played a central role in shaping modern norms of wartime environmental protection, it also exposed the limits of international law as an enforcement mechanism. Since the 1970s, legal recognition of environmental harm has expanded, but it has failed to ever hold anybody accountable. By tracing this pattern across conflicts from Vietnam through the Persian Gulf War to Kosovo, Gaza, and Ukraine, this study demonstrates that wartime environmental protection remains largely symbolic. International law acknowledges the environment as something worth protecting, yet repeatedly fails to protect what it was implemented for.

Understanding this legal failure is essential for environmental history. War leaves ecological legacies that shape landscapes, public health, and economies long after fighting ends. If legal systems cannot address this harm, then environmental desolation remains a normalized feature of modern warfare. While the Vietnam War provides the starting point for this study, it is not the origin of the problem. The persistence of military justifications for environmental destruction suggests deeper historical roots, which historian and Professor Emmanuel Kreike explored in his book *Scorched Earth* which explored environmental warfare as a crime from the Dutch Revolt through the First World War. He writes in the conclusion of the book:

In segregating the realms of Nature (and natural physical biological processes) and human Culture (the physical and metaphysical creations of humans including, artifacts, art, and technology), the dichotomy obscures the synergy between the two.²⁰

²⁰ Kreike, E. *Scorched Earth: Environmental Warfare as a Crime against Humanity and Nature*, Pg. 394.

In writing this, Professor Kreike argues that, throughout history, people have largely ignored the ecological consequences of armed conflict because they separate the impact on humans from the impact on nature. This separation stems from anthropocentric views that prioritize maintaining human power over concern and justice for the natural world.²¹

This persistent separation of the human and ecological costs of war not only distorts the modern perception of military-environmental law but also limits the international legal system's ability to respond to these issues in both ongoing and future conflicts.

Part II: Historical Precedents and Early Legal Limits

Long before the twentieth century, militaries deliberately altered and destroyed the environment as part of their campaigns. These actions were rarely framed in ecological terms, but they reveal that armies have always understood the landscape as something to be used, reshaped, or sacrificed for strategic advantage. In this sense, the environmental devastation carried out in Vietnam represents the modern continuation of a much older tradition.

One of the earliest large-scale examples of wartime environmental destruction can be seen in the Mongol conquests of Eurasia during the thirteenth century. As Daniel Waugh explains, contemporary Russian and Middle Eastern chroniclers described the Mongol invasions as apocalyptic, emphasizing not only the destruction of cities but the complete ruin of the surrounding land. One account of the Mongol capture of Riazan' concludes that "there is nothing to be seen in the city except smoke, ashes, and barren earth".²² The Mongols were historically viewed as having destroyed farmland, irrigation systems, and settlements in order to make regions more suitable for grazing and for their own logistical needs.²³ Yet archaeological

²¹ Clark, J. 2025, Pg. 2.

²² Waugh, D., 2017, Pgs. 16-17.

²³ Ibid.

evidence shows that this destruction was not always universal. In some cases, as Waugh notes, no layers of fire or mass destruction can be definitively linked to the Mongol conquest, suggesting that their environmental modification was often localized and strategic rather than absolute.²⁴ Even so, these campaigns demonstrate that environmental destruction has long been considered a major component of conquest. Later discussion of Vietnam’s defoliation campaigns and fire-based weapons, show that the treatment of ecosystems as military terrain did not suddenly emerge in the 1960s , but rather it was already present in earlier imperial and industrial conflicts—regardless of their geographic area.²⁵

The idea that a military could justify destroying the environment in order to survive or win also appears in the early modern period. During Napoleon’s invasion of Russia in 1812, Russian commanders adopted a scorched-earth policy that intentionally burned villages and crops ahead of the advancing French army. As Aditya Nath explains, this strategy aimed to “deny the enemy any resource” that could sustain them, effectively turning the countryside itself into a defensive weapon.²⁶ This tactic contributed directly to the collapse of Napoleon’s forces. What makes this important is that it shows how environmental devastation has long been seen as a legitimate military necessity.²⁷ This is replicated in the Iraqi Military’s later destruction of Kuwait’s oil fields in 1991²⁸ and Russia’s targeting of Ukraine’s farmland²⁹ and infrastructure³⁰ follow the same logic: the environment is destroyed not as collateral damage, but as a deliberate violation of *Jus In Bello* principles intended to shift the balance of war.³¹

²⁴ Ibid., Pgs. 13-14.

²⁵ Krieger, E., Pgs. 409-411.

²⁶ Nath, A., 2021, Pg. 21.

²⁷ Ibid., Pg. 25.

²⁸ Lindén, O., et. al., 2004, Pg. 21.

²⁹ Iraola, C., 2024, Pg. 10.

³⁰ Hryhorczuk, D., et. al., 2024, Pgs. 2, 4, 8-9, 11.

³¹ Nevitt, M. 2024, Pgs. 1366, 1372

The American Civil War represents an even clearer precursor to the kind of industrial environmental warfare later seen in Vietnam. Lisa Brady shows that by the 1860s, armies were no longer merely responding to the environment; they were actively reshaping it. Foraging campaigns and cavalry raids “transformed the destruction of the landscape from a consequence into a weapon of war,” severing the relationship between civilians and their land.³² Commanders such as Ulysses S. Grant openly defended this devastation, arguing that armies could not survive without stripping the land of its resources.³³ Scholars such as Kreike have similarly framed early warfare in the Americas as a turning point in the industrialization of environmental destruction, showing how modern armies began to treat ecosystems as tactical assets rather than neutral ground.³⁴ The same mindset would later shape U.S. policies in Vietnam, particularly through the deployment of herbicides and fire-based weapons in operations such as Sherwood Forest and Hot Tip.³⁵

At the same time, early laws began to recognize the environmental consequences of warfare, even if they failed to prevent them. The Lieber Code of 1863—also known as General Orders 100—allowed destruction of property when “imperatively demanded by the necessities of war,” but also prohibited poison and “wanton devastation,” revealing an early contradiction between military necessity and humanitarian restraint.³⁶ The Hague Conventions later prohibited unnecessary destruction of enemy property, and the 1925 Geneva Gas Protocol formally banned chemical warfare³⁷, reflecting growing international concern over the environmental impacts of

³² Brady, L., 2005, Pg. 428.

³³ *Ibid.*, Pg. 429.

³⁴ Kreike, E., Pgs. 247-253.

³⁵ United States Department of Agriculture., *Forest Fire as a Military Weapon*, Pgs. 2,4. 1970

³⁶ General Orders 100, Article 16.

³⁷ Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, 1925.

modern conflict.³⁸ Yet, as historians of international law have shown, these protections were rarely enforced³⁹, and state actors faced almost no consequences for violating them.⁴⁰

This historical record is important for understanding the legal failures that followed Vietnam. As Katherine Kelly and Blake Lara both claim, the international legal system has consistently recognized the dangers of environmental warfare⁴¹ while simultaneously failing to hold states accountable for it.⁴² The ICC's later reluctance to prosecute environmental crimes in conflicts like the Gulf War, Kosovo, Gaza, and Ukraine reflects not a new weakness, but an extension of a long-standing pattern in which environmental protection exists largely in theory rather than in practice.

Seen together, these cases show that environmental destruction has always been intertwined with military strategy. From the Mongols' transformation of agricultural systems, to Russia's scorched-earth defense against Napoleon, to the industrial devastation of the Civil War, the environment has repeatedly been treated as a legitimate target of war. Vietnam did not invent this tradition but rather intensified it.

Part III: The Korean War

The Korean War stands at a critical midpoint in the history of wartime environmental destruction. Fought between 1950 and 1953, it was one of the first truly industrial wars of the Cold War era.⁴³ Air power, mechanized armies, and chemical and incendiary weapons were deployed on a scale that reshaped the Korean Peninsula's landscape and civilian infrastructure. Yet unlike Vietnam, the war took place before the modern legal framework for environmental

³⁸ Declaration (IV,2) concerning Asphyxiating Gases. The Hague, 29 July 1899.

³⁹ Kelly, K. 1992, Pg. 934.

⁴⁰ Lara, B. 2015, Pg. 151

⁴¹ Ibid. Pgs. 156-157.

⁴² Kelly, 1992, Pg. 934.

⁴³ Hwang, S., 2021, Pg. 534

protection existed. As a result, it reveals how environmental destruction was normalized in mid-twentieth-century warfare and why later attempts at legal restraint would prove so difficult to enforce.⁴⁴

One of the defining environmental features of the Korean War was the United States' strategic bombing campaign. U.S. air forces targeted not only military installations but also dams, reservoirs, and agricultural infrastructure—most notably targeting sup'hung dam.⁴⁵ These attacks, however, would be postponed by United Nations Command multiple times until June 1952.⁴⁶ According to Su-kyoung Hwang, this campaign transformed the landscape of North Korea, flooding fields and destroying the agricultural systems that sustained civilian populations.⁴⁷ The destruction of hydroelectric dams, including the sup'hung, Toksan, and Sui-ho dams, caused massive downstream flooding and long-term ecological damage and civilian casualties, which would later be downplayed by the US Air Force.⁴⁸ This was not simply a byproduct of war. It was part of a deliberate strategy to undermine North Korea's ability to feed and support itself, echoing the scorched-earth practices mentioned in Part II by targeting locations that had little to no military value after USAF pilots reportedly ran out of targets with such capacities.⁴⁹ Even though by this point, environmental law protecting the environment in times of war had not yet been established, the deliberate targeting of dams and agricultural sites by the US Air Force was in direct violation of Article 53 of the Geneva Convention of 1949—even though nobody was held accountable.⁵⁰

⁴⁴ Ibid., Pg. 535.

⁴⁵ Ibid., Pg. 521.

⁴⁶ Ibid.

⁴⁷ Ibid. Pg. 520.

⁴⁸ Ibid. Pgs. 520-522

⁴⁹ USAF Oral History Program, Interview #792, Lt. Gen. Edward J. Timberlake, May 1965, 17.

⁵⁰ Convention (IV) relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949. Article 53.

The Korean conflict also marked a significant escalation in the use of incendiary and chemical weapons. Napalm was used extensively by U.S. forces, not only against military targets but across forested and rural landscapes. Historians estimate that more napalm was dropped in Korea than in the entire Pacific theater during World War II.⁵¹ This tactic turned large swaths of forest and farmland into burned, barren terrain, demonstrating that by the early Cold War, the environment had become a direct target of industrial weaponry. The same technologies and strategic logic developed in Korea were not abandoned after the war.⁵² Instead, they became the foundation for the United States' later approach to environmental warfare in Vietnam.⁵³ In Korea, napalm and large-scale bombing had already demonstrated that fire and chemical agents could be used to strip away forests, expose enemy positions, and destroy the ecological systems that supported civilian life; the same philosophy that would be used during Operation Pink Rose during Vietnam.⁵⁴

By the early 1960s, this mindset evolved into far more systematic and technologically driven programs. Under Operation Ranch Hand, the U.S. Air Force sprayed millions of gallons of herbicides such as Agent Orange to defoliate jungles and eliminate crops, making the landscape itself easier to control, annihilating landscapes once covered in lush forests.⁵⁵ At the same time, CINCPAC approved Operation Pink Rose which directed the U.S. Forest Service and DARPA to research methods of drying and igniting dense Southeast Asian forests, essentially industrializing the scorched-earth tactics.⁵⁶ These projects show that Vietnam was not simply another case of wartime environmental damage. It was the moment when earlier Cold War experimentation with environmental destruction became fully intentional, scientifically

⁵¹ Guillaume, M., 2016, Pg. 4.

⁵² Hwang, S., 2021, Pg. 533.

⁵³ Mutch, et. al., Pg. 23.

⁵⁴ United States Department of Agriculture, *Forest Fire as a Military Weapon*, Pg. 73. 1970.

⁵⁵ Vietnam Archive Oral History Project, Interview with Michael Harris, August 2000, 33.

⁵⁶ Mutch, et. al., Pg. 12.

organized, and globally visible, which ultimately pushed the international community to begin drafting formal wartime environmental protections.

These impacts foreshadow the ecological devastation later seen in Vietnam, but without the same level of international backlash or legal reform. In Korea, the destruction of forests, croplands, and watersheds was largely interpreted through the lens of military necessity rather than humanitarian concern.⁵⁷ As Hwang explains, environmental damage—and allegations of such—was understood as an unavoidable consequence of total war, especially in a conflict that was framed as a defense against communism.⁵⁸ There was no widespread public or international conversation about whether this kind of destruction should be prohibited. That shift would only come later, in the 1960s and 1970s, when the scale of environmental modification in Vietnam became impossible for scientists, journalists, and policymakers to ignore (Kreike 2021). The Korean War therefore reveals the key pattern that continues throughout military history that environmental destruction in war was recognized and documented, but not treated as a legal or moral issue demanding accountability. Vietnam becomes the moment when that silence breaks, but it also shows how deeply rooted the practice already was in modern military strategy.

Despite the scale of this destruction, the Korean War produced little serious discussion of environmental protection in international law. The primary legal instruments in force at the time focused almost entirely on the regulation of weapons⁵⁹ and the protection of civilian populations, not the protection of ecosystems themselves.⁶⁰ While these frameworks prohibited certain forms of unnecessary destruction or chemical warfare, they did not address the broader ecological consequences of bombing campaigns, scorched-earth strategies, or the long-term degradation of

⁵⁷ Air University Quarterly Review 1953–1954, 47.

⁵⁸ Hwang, Pg. 530

⁵⁹ Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, 1925.

⁶⁰ Convention (IV) relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949.

land and water. As Katherine Kelly has argued in her study of the Gulf War, this reflects a larger structural problem in international law: environmental harm is often acknowledged, but it is rarely defined in ways that make it enforceable.⁶¹ Blake Lara similarly notes that even after Vietnam, the international legal system has continued to struggle with the transition of environmental norms into binding wartime obligations, revealing that this enforcement gap has deep historical roots.⁶²

The Korean War represents a moment when industrial warfare had clearly advanced far beyond the law's ability to restrain it. Militaries possessed the technological capacity to reshape entire landscapes through fire, chemical agents, and infrastructure destruction, but international legal systems remained focused on the conduct of war between states rather than the environmental consequences of those actions.⁶³ This imbalance is reminiscent of the same contradiction present in the Lieber Code of 1863, where environmental restraint was mentioned, yet always subordinated to military necessity.⁶⁴ In the early 1950s, that tension remained unresolved.⁶⁵ The destruction of forests, dams, cropland, and waterways in Korea was legally permissible so long as it could be justified as strategically necessary⁶⁶ — a pattern that would repeat in Vietnam, Kuwait, Kosovo, Gaza, and Ukraine, and that ultimately explains why modern enforcement bodies such as the ICC and ICJ still struggle to prosecute wartime environmental destruction today.⁶⁷

Seen in this context, the Korean War functions as both a precedent and a warning. It demonstrates that large-scale environmental destruction was already built into modern military

⁶¹ Kelly, K., 1992, Pg. 933.

⁶² Lara, B., 2015, Pg. 142.

⁶³ Guillaume, M., 2016, Pg. 6.

⁶⁴ General Orders 100, Articles 16, 70.

⁶⁵ Guillaume, M., 2016, Pgs. 4-5

⁶⁶ Air Force Historical Research Agency. File K239.042-3. Maxwell Air Force Base, Montgomery, AL.

⁶⁷ Jarose, J., 2024, Pg. 480-482.

strategy well before Vietnam. The U.S. bombing of dams, the widespread use of napalm, and the clearing of forests for tactical purposes show that by the early Cold War, the environment had become something that could be intentionally altered or destroyed to achieve military goals.⁶⁸

What makes Korea especially significant is that it happened before the international community had created a formal legal structure to address this kind of damage. In other words, the practices were already there, but the law had not yet caught up.

At the same time, Korea exposes a deeper pattern that continues after Vietnam: recognition does not equal accountability. Even though the environmental damage in Korea was visible and well documented, it did not result in any meaningful legal consequences for the states responsible. As Katherine Kelly,⁶⁹ Blake Lara⁷⁰, and Eliana Cusato⁷¹ all show in different ways, international legal bodies consistently acknowledge environmental destruction—and the violation of the laws surrounding it—, yet hesitate to prosecute it when doing so would challenge the military or political power of another state.⁷²

The environmental legacies of Korea therefore fit into a broader historical pattern that can be traced across time. From Vietnam's defoliation campaigns, Iraq's oil fires in the Gulf War, NATO's bombing of industrial sites in Kosovo, the collapse of water and sanitation systems in Gaza, and the contamination of land and ecosystems in Ukraine all repeat the same dynamic: the damage is recorded, studied, and sometimes condemned, but rarely punished.⁷³

Part IV: The Vietnamese Turning Point

The Vietnam War represents the most defining turning point in the history of wartime environmental destruction and environmental protection. Unlike the Korean War, where

⁶⁸ Baskoro, A., 2025, Pg. 6.

⁶⁹ Kelly, K., *Declaring War on the Environment*, 1992.

⁷⁰ Lara, B., *The Failure of Environmental International Law During Times of War*, 2004.

⁷¹ Cusato, E., *Overcoming the Logic of Exception*, 2018.

⁷² Etone, D., 2021, Pg. 4.

⁷³ Clark, J., 2024, Pg. 10.

environmental devastation was extensive but largely accepted as a feature of total war, Vietnam made environmental destruction visible, deliberate, and scientifically organized while being enabled by the Military Industrial Complex.⁷⁴ This shift towards environmental warfare not only reshaped the physical landscape of Southeast Asia, but also transformed global conversations about warfare, law, and environmental responsibility.⁷⁵

The most visible expression of this strategy was Operation Ranch Hand. Under this program, the U.S. Air Force sprayed millions of gallons of herbicides, most famously Agent Orange—as well as other herbicides such as agents blue—⁷⁶, to strip forest cover, destroy crops, and make Vietnamese landscapes easier to control.⁷⁷ As David Zierler explains, this represented the invention of ecocide, where environmental destruction became both a tactic and a political controversy.⁷⁸ The legal effects were profound. Although the use of poison had been prohibited since the Lieber Code of 1863⁷⁹ The U.S. framed these operations as militarily necessary, not criminal. This same tension between legality and necessity later appears in the Rome Statute of the ICC, which technically criminalizes environmental destruction but only if it meets the nearly impossible threshold of being “widespread, long-term, and severe”.⁸⁰

At the same time, the U.S. pursued even more experimental methods of environmental warfare. Through Operation Pink Rose, the CIA, Department of Defense, and U.S. Forest Service collaborated with DARPA to research methods for drying and igniting dense Southeast Asian forests.⁸¹ The project sought to turn fire into a controlled and deployable military

⁷⁴ Zierler, D. 2011, Pgs. 110-111

⁷⁵ Bothe, M., et. al., 2010, Pg. 573.

⁷⁶ Mutch, et. al., Pg. 84.

⁷⁷ Lewis, J., 2006, Pg. 99

⁷⁸ Zierler, D., 2011.

⁷⁹ General Orders 100, Article 70.

⁸⁰ International Criminal Court, Rome Statute Article 8(2)(b) (IV). 1998.

⁸¹ United States Department of Agriculture., *Forest Fire as a Military Weapon*, 3. 1970

technology, rather than a byproduct of bombing.⁸² The Pink Rose report makes this intent explicit, stating that ARPA was tasked with developing a capability to destroy by fire large areas of forest and jungle growth in Southeast Asia. Pink Rose's background for the test plan reads as follows:

In September 1965, CINCPAC recommended to the Joint Chiefs of Staff that an immediate requirement be established to develop a capability to destroy by fire large areas of forest and jungle growth in Southeast Asia. This request was approved by the Joint Chiefs of Staff and the Director of Defense Research and Engineering directed the Advanced Research Projects Agency (ARPA) to accomplish the required research tasks. The Forest Service, under contract to ARPA, researched this problem in Vietnam and collected data. A test operation was conducted at Chu Pong mountain (YA 88 02) near Pleiku. Bum of this area was accomplished on 11 March 1966 by B-52 strikes (HOT TIP I & II). The area selected had previously been defoliated and incendiaries were dropped to ignite the area to be burned. It was concluded that although results of HOT TIP were indeterminate, sufficient information did exist to warrant proceeding with project PINK ROSE in three areas selected within War Zones C and D.⁸³

This effort paralleled the U.S. military's broader adoption of napalm and incendiary bombing, which had already been central to U.S. doctrine in both World War II⁸⁴ and Korea.⁸⁵ The conflict in Vietnam, however, made these practices more deliberate, scientific, and visible.

⁸² Mutch, et. al., Pgs.111-115

⁸³ Ibid.Pg. 82.

⁸⁴ Guillaume, M., 2016, Pgs. 3-4.

⁸⁵ Hwang, S. 2021, Pg. 520

These policies devastated Vietnam's ecological systems. Forests were eliminated, soil fertility was destroyed, water systems were contaminated, and biodiversity collapsed across large regions of the country. By the late 1960s, the environmental consequences were so severe that they sparked an international conversation about whether this level of destruction should be legally prohibited. A 1970 New York Times editorial captured the moment by publicizing Yale Professor Arthur Glaston's call for a global ban on what he called "ecocide," showing that the global public realized environmental damage had become impossible to ignore and could no longer simply be seen as purely collateral damage.⁸⁶

This growing recognition led directly to the creation of the first international treaties specifically addressing environmental harm in war. The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD), adopted in 1976, was the clearest response to the types of experimental environmental warfare conducted in Vietnam.⁸⁷ ENMOD prohibited the use of environmental modification techniques "having widespread, long-lasting, or severe effects,"⁸⁸ such as altering weather, hydrology, or vegetation, effectively targeting projects like Pink Rose as well as engineered drought, flooding, and deforestation.⁸⁹ Importantly, ENMOD did not emerge in a vacuum — it reflected growing fears that environmental manipulation had become a new form of warfare that could threaten both ecosystems and civilian populations at a global scale.

ENMOD had major flaws from the start. Where the treaty defines what is prohibited in articles I and II, legal scholars, courts, and sovereign states have struggled to grasp the vague

⁸⁶ The New York Times. 1970. "... And a Plea to Ban 'Ecocide,'" February 26, 1970.

⁸⁷ United Nations, Convention on the prohibition of military or any other hostile use of environmental modification techniques. 1976.

⁸⁸ Ibid. Article I.

⁸⁹ Ibid. Article II

definition.⁹⁰ Turkey's signer of the ENMOD treaty wrote the following interpretive statement under his signature:

In the opinion of the Turkish Government the terms "widespread", "long lasting" and "severe effects" contained in the Convention need to be more clearly defined. So long as this clarification is not made the Government of Turkey will be compelled to interpret itself the terms in question and consequently it reserves the right to do so as and when required. Furthermore, the Government of Turkey believes that the difference between "military or any other hostile purposes" and "peaceful purposes" should be more clearly defined so as to prevent subjective evaluations.⁹¹

One year later, several states adopted Additional Protocol I to the Geneva Conventions (1977), which included one of the strongest environmental protection clauses in the history of international humanitarian law.⁹² Article 35 explicitly prohibits "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment"⁹³ while Article 55 reinforced this principle, it reads as follows:

1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

⁹⁰ Killean, S. and Short, D., 2025, Pgs. 7-8.

⁹¹ United Nations, Convention on the prohibition of military or any other hostile use of environmental modification techniques. 1976. Pg. 207

⁹² United Nations, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1). 1977

⁹³ Ibid. Article 35.

2. Attacks against the natural environment by way of reprisals are prohibited.⁹⁴

This language was likely a direct response to Vietnam's herbicidal warfare and ecological devastation, and it marks the significant conceptual shift that believed the environment was no longer treated merely as property or a resource for human use, but as something with intrinsic value that deserved protection during armed conflict.

Scholars such as Michael Bothe, Carl Bruch, and David Jensen have argued that together, ENMOD and Additional Protocol I represented a major turning point in international humanitarian law, formally embedding environmental protection into the laws of war for the first time.⁹⁵ Yet they also note that these legal advances came with serious structural weaknesses. The thresholds for what constituted prohibited environmental damage were intentionally high, and the treaties relied almost entirely on state cooperation and political will for enforcement.⁹⁶ As a result, Vietnam helped inspire the creation of new legal protections for the environment and also exposed the limitations of international law.

Despite this progress, Vietnam also exposed the limits of international accountability. The Agent Orange litigation of the 1980s acknowledged the devastating health and environmental consequences of herbicidal warfare, yet failed to hold the U.S. government or chemical corporations criminally responsible.⁹⁷ The US District Court of the Eastern District of New York recognized the damage, but treated it as a matter of civil liability rather than a violation of the laws of war.⁹⁸ This outcome reinforced a broader pattern within international law. As Blake Lara notes, environmental protections often fail during times of war, due to “the continuous nature of

⁹⁴ Ibid. Article 55.

⁹⁵ Bothe, M., et. al., 2010, Pg. 574.

⁹⁶ Ibid. Pg. 576.

⁹⁷ In Re Agent Orange Product Liability Litigation, 597 F. Supp. 740 (E.D.N.Y. 1984), 2025.

⁹⁸ Ibid.

war and its destruction of the environment suggest a lack of criminal prosecution and an overall failure of these agreements to provide an effective deterrent.”⁹⁹

That pattern is evident in the conflicts that followed. During the 1991 Gulf War, the burning of Kuwait’s oil fields caused severe and lasting ecological damage.¹⁰⁰ Although widely condemned, the response resulted in compensation rather than prosecution.¹⁰¹ Similarly, the NATO bombing of Kosovo in 1999 contaminated industrial zones—most notably the attack on Pančevo—¹⁰²and waterways, yet produced environmental assessments without criminal accountability.¹⁰³

More recent conflicts continue this trend. In Gaza, international observers have described the scale of environmental destruction in terms associated with ecocide.¹⁰⁴ Military personnel of the Israeli Defense Forces have intentionally targeted sewage sanitation sites which have resulted in pollution to the extent where Gaza’s water supply has become undrinkable.¹⁰⁵ Despite this intentional attack on civilian sites, and civilian lifelines, enforcement remains limited.¹⁰⁶ In Ukraine, researchers have documented widespread environmental harm from the Russian invasion, including damage to soil, water systems, and biodiversity, but international legal action has remained largely symbolic (Angurets et al. 2023; Clark 2025).

Taken together, these cases show that while Vietnam prompted the creation of wartime environmental protections, it also established a precedent of recognition without enforcement. The reluctance to treat environmental destruction as a prosecutable crime — first made visible

⁹⁹ Lara, B., 2015, Pg. 142.

¹⁰⁰ Roberts, A., 1992, Pg. 542

¹⁰¹ Payne, C., 2016, Pg. 723.

¹⁰² United Nations, 1999, Pg. 31-32.

¹⁰³ Bauer, A., 2018, Pg. 27.

¹⁰⁴ Ahmed et al. *‘Ecocide in Gaza’: does scale of environmental destruction amount to a war crime?*, The Guardian, 2024.

¹⁰⁵ United Nations, 2024, Pg. 19.

¹⁰⁶ Hassoun, A., 2025, Pg. 3

through Agent Orange — continues to define how international courts respond to environmental harm in war.

Vietnam stands as both a turning point and a warning. It forced the international community to confront the reality that modern warfare could destroy entire ecosystems, and in doing so, it helped generate the first meaningful legal language for protecting the environment in conflict. Treaties like ENMOD and Additional Protocol I emerged directly from this moment, promising to limit environmental damage. In theory, this marked a major advance in humanitarian law.

In practice, however, Vietnam also revealed the political limits of that progress. The same states that helped draft these environmental protections were often the ones most capable of violating them, and the legal standards themselves were written in ways that made prosecution exceptionally difficult. Environmental destruction had been recognized, but it had not been made enforceable. As a result, the post-Vietnam legal order created a framework where environmental harm could be documented and condemned, yet still treated as secondary to military necessity and state sovereignty.

This tension becomes the central problem of the legal architecture that developed after Vietnam promising protection for the environment, but the institutions tasked with enforcing those protections — including the United Nations, the International Court of Justice, and later the International Criminal Court — have repeatedly failed to translate those norms into accountability. Vietnam did not solve the issue of environmental destruction in war. It exposed it, codified it, and then left it largely unenforced.

The legal and moral contradictions exposed by Vietnam did not end with that conflict. They continued to shape later wars, where states increasingly acknowledged environmental

protections in principle while avoiding meaningful enforcement in practice. Case studies from the Gulf War, Kosovo, Gaza, and Ukraine reveal how the gap between recognition and accountability has remained a defining feature of modern warfare.

Part V: Post Vietnam Environmental Warfare

The decades after the Vietnam War did not represent a retreat from environmental destruction in conflict. Instead, they reveal how wartime environmental law developed in theory while environmental warfare expanded in practice. Emmanuel Kreike argues that the history of warfare shows a recurring pattern in which militaries deliberately reshape the natural world, but those actions are rarely treated as crimes against nature or humanity.¹⁰⁷ Vietnam stands out because it forced the international community to confront the environmental consequences of modern warfare, yet the conflicts that followed show that this awareness did not translate into restraint. Blake Lara similarly demonstrates that international environmental law has consistently struggled to operate during armed conflict, since enforcement depends on the same states that often carry out the destruction.¹⁰⁸ In this way, the post-Vietnam period becomes a test of whether new legal norms could meaningfully limit military behavior — and the historical record suggests they did not.

The ENMOD Convention (1976) and Additional Protocol I (1977) were drafted in direct response to the methods of environmental warfare used in Vietnam. ENMOD prohibits the use of environmental modification techniques that produce “widespread, long-lasting, or severe effects,” explicitly addressing the manipulation of natural systems as a weapon of war.¹⁰⁹

¹⁰⁷ Kreike, E. *Scorched Earth: Environmental Warfare as a Crime against Humanity and Nature*, Pg. 2.

¹⁰⁸ Lara, B. 2015, Pg. 143.

¹⁰⁹ United Nations, Convention on the prohibition of military or any other hostile use of environmental modification techniques. 1976.

Additional Protocol I expands this principle by banning methods or means of warfare expected to cause “widespread, long-term, and severe damage to the natural environment”.¹¹⁰ As Michael Bothe and Carl Bruch explain, these treaties marked the first time environmental protection was formally incorporated into international humanitarian law, yet they also note that the standards for what constitutes unlawful environmental harm were intentionally set at extremely high thresholds.¹¹¹ This created a legal paradox of states acknowledging the importance of environmental protection, but structured laws in ways that preserved broad discretion for military actors. The consequence is that ENMOD and Protocol I functioned more as symbolic declarations of environmental concern than as binding mechanisms for accountability.

The weaknesses of this legal framework became clear almost immediately during the 1991 Gulf War. Iraq’s deliberate burning of Kuwait’s oil wells caused Adam Roberts to frame it as one of the greatest acts of environmental destruction in the history of warfare.¹¹² The fires released enormous quantities of toxic pollutants, contaminating soil, water, and air across the Persian Gulf region.¹¹³ Katherine Kelly argues that the Gulf War exposed the inability of existing international treaties to prevent or punish large-scale environmental damage during conflict, despite the fact that ENMOD and the Geneva Conventions were already in force.¹¹⁴ Rather than prosecute Iraq’s actions as violations of environmental law, the international response relied on the United Nations Compensation Commission, which focused on financial liability rather than criminal enforcement.¹¹⁵ This set a powerful global precedent of addressing wartime

¹¹⁰ United Nations, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1). 1977

¹¹¹ Bothe et al. 2010, Pg. 572

¹¹² Roberts, A., 1992, Pg. 552.

¹¹³ Lindén et al. 2004, Pg. 7.

¹¹⁴ Kelly, K., 1992, Pg. 921.

¹¹⁵ Payne, C., 2016, Pg. 736.

environmental devastation through financial compensation rather than actual criminal prosecution.

A similar dynamic emerged during the Kosovo conflict of 1999. NATO's bombing campaign targeted industrial and petrochemical facilities in Serbia, causing extensive contamination of waterways and surrounding ecosystems. The United Nations Environment Programme documented serious environmental and public health risks resulting from these strikes, particularly around Pancevo and Novi Sad.¹¹⁶ Despite the documentation of ecological harm, the bombing was never treated as a prosecutable environmental crime. Instead, the international response focused on environmental monitoring and reconstruction, reinforcing the same model used after the Gulf War.

This pattern continues in the twenty-first century. In Gaza, recent assessments by the United Nations Environment Programme and independent scholars describe widespread damage to water infrastructure, agricultural land, and urban environments, warning that the conflict will produce long-term environmental and public health consequences.¹¹⁷ These reports use language that closely mirrors earlier discussions of ecocide, yet the destruction remains largely unaddressed in international courts.¹¹⁸ The same is true in Ukraine, where researchers have documented severe contamination of soil, waterways, and biodiversity resulting from Russia's invasion.¹¹⁹ Scholars such as Mark Nevitt argue that these modern conflicts expose how international legal systems remain focused on human casualties and infrastructure, while environmental destruction is treated as an afterthought rather than a central legal issue.¹²⁰

¹¹⁶ United Nations Environment Programme and United Nations Center for Human Settlement (Habitat), 1999, Pg. 46.

¹¹⁷ Pizarro, I., 2025, Pg. 12.

¹¹⁸ Ibid, Pg. 43.

¹¹⁹ Hryhorczuk, D., et. al., 2024.

¹²⁰ Nevitt, M., 2024, Pgs. 1391-1392.

Taken together, these conflicts show that although the international community developed a legal framework for wartime environmental protection after Vietnam, it has repeatedly failed to enforce those protections in practice. The environment has been recognized as something worth protecting, yet it continues to be treated as a legitimate target of war.

Part VI: International Courts and the Failure to Uphold Environmental Law

The creation of modern wartime environmental protections after the Vietnam War gave the appearance that the international community had finally recognized the scale of ecological destruction that industrial warfare could produce. Yet the responsibility for enforcing these new protections fell to international legal institutions whose mandates had historically prioritized state sovereignty, military necessity, and the protection of civilian populations rather than ecosystems themselves. As Michael Bothe and Carl Bruch argue, international humanitarian law after Vietnam “recognized the environment as a distinct legal concern,” but left enforcement dependent on the same political actors capable of causing the damage.¹²¹ The article *A Critical Defence of the Crime of Ecocide* similarly observes that this structure created an inherent contradiction where while environmental harm was acknowledged in law, it remained difficult to implement because enforcement relied on state consent rather than independent legal authority.¹²² This tension explains why, despite decades of environmental assessments and treaty development, international courts have repeatedly failed to hold states accountable for ecological devastation during war.

The legal framework that most clearly illustrates this problem is the Rome Statute of the International Criminal Court. Article 8(2)(b)(iv) criminalizes environmental damage only when

¹²¹ Bothe et al. 2010, Pg. 576.

¹²² Killean, S. and Short, D., 2025, Pg. 5

it is “widespread, long-term, and severe,” and even then, only if it is “clearly excessive” in relation to the anticipated military advantage.¹²³ This language mirrors the earlier thresholds established by ENMOD and Additional Protocol I, but with an additional layer of ambiguity that has limited its application.¹²⁴ As Cymie Payne notes, the Rome Statute was drafted in the wake of the Gulf War’s oil fires, yet its standard for environmental criminality remains so high that it has prevented any actual criminal prosecution.¹²⁵ The requirement that courts weigh environmental destruction against military advantage places the burden of proof on scientific and legal authorities while still privileging the decisions of military planners. In practice, this ensures that environmental destruction is treated as an unfortunate side effect of conflict rather than as a prosecutable war crime.

The International Court of Justice (ICJ) reflects a similar pattern of recognition without enforcement. While the Court has acknowledged environmental protection as a legal obligation, it has rarely exercised authority in a way that challenges state military behavior.¹²⁶ The Court emphasizes that states have a duty to prevent serious environmental harm, yet it lacks the independent enforcement power required to ensure compliance. This limitation becomes especially clear in contemporary conflicts. As Kaamil Ahmed and Damien Gayle argue in their reporting on Gaza, the ICJ has recognized that large-scale environmental destruction is occurring, but meaningful action depends on political referrals and state cooperation rather than automatic jurisdiction.¹²⁷ The Court’s inability to move beyond advisory opinions highlights the same structural weakness seen after Vietnam.

¹²³ International Criminal Court, Rome Statute Article 8(2)(b) (IV). 1998.

¹²⁴ Killean, S. and Short, D., 2025, Pg. 10.

¹²⁵ Payne, C., 2016,

¹²⁶ Howell, J., 2023, Pg. 9

¹²⁷ Ahmed et al. ‘*Ecocide in Gaza*’: does scale of environmental destruction amount to a war crime?, The Guardian, 2024.

The United Nations' own post-conflict mechanisms have reinforced this pattern rather than correcting it. Following the 1991 Gulf War, the United Nations Compensation Commission (UNCC) addressed the environmental damage caused by Iraq's burning oil fields by awarding Kuwait financial compensation for ecological damages caused by Iraq, but it did not pursue criminal accountability.¹²⁸ One scholar describes this response as a defining example of the UN's reluctance to challenge state conduct during war, arguing that the UN system for enforcement prioritizes political stability and reconstruction over the enforcement of environmental norms.¹²⁹ The result was that one of the most severe environmental disasters of the twentieth century was treated as a compensable civil offense rather than a prosecutable violation of humanitarian law. This model of compensation by the United Nations rather than pursuing war crimes charges in the face of blatant violations of international law shows not only the institutional weakness of the UN but also their reluctance to uphold international law in the name of "stability".¹³⁰

That same approach has continued into the present. In Ukraine, environmental researchers have documented the contamination of soil, water, and industrial infrastructure resulting from Russia's invasion,¹³¹ along with long-term threats to biodiversity¹³² and public health.¹³³ Yet these findings have not resulted in substantial prosecution by the ICC or ICJ.¹³⁴ Legal scholars such as Mark Nevitt argue that this failure reflects an institutional problem rather than a lack of evidence: the international courts are "ill-equipped to respond to the environmental consequences of modern war" because their mandates emphasize immediate human casualties

¹²⁸ Payne, C., 2016, Pg. 724.

¹²⁹ Custao, E., 2018, Pgs. 76, 83

¹³⁰ Killean, S. and Short, D., 2025, Pg. 9.

¹³¹ Angurets et al. 2023, Pg. 13, 15.

¹³² Clark, J., 2025, Pg. 16.

¹³³ Dzhus, M. and Golovach, I., 2022, Pg. 2.

¹³⁴ Rekurt, I., 2024, Pg. 105.

over slow-moving ecological destruction.¹³⁵ Similarly, the United Nations Environment Programme's 2024 assessment of Gaza warns of unprecedented environmental collapse, but the international legal response has remained largely symbolic.¹³⁶ In both cases, the destruction is recognized and reported, but enforcement mechanisms—such as those structurally enabled by ENMOD, AP I, and the ICC charter—fail to be upheld.

This persistent enforcement gap has generated growing scholarly criticism. Joanna Jarose argues that while the ENMOD Convention could act as a meaningful limit on environmental manipulation, its prohibitions are rarely invoked because enforcement bodies defer to state interests and military justifications.¹³⁷ Clark likewise suggests that modern conflicts reveal how international law continues to operate within an anthropocentric framework, one that recognizes environmental damage only insofar as it directly affects human populations.¹³⁸ These limitations have prevented international courts from adapting to the realities of industrial warfare, where environmental destruction is often deliberate, strategic, and long-lasting.

Taken together, the history of post-Vietnam legal development demonstrates that the failure of enforcement institutions is not accidental. The legal architecture for protecting the environment during armed conflict has steadily expanded since the 1970s, yet the institutions tasked with applying it have remained constrained by politics, sovereignty, and the prioritization of military necessity. The ICC and ICJ have proven capable of recognizing environmental harm, but unwilling or unable to prosecute it. As a result, the environment continues to function as one of the least protected victims of modern warfare, revealing that while wartime environmental law has evolved dramatically after Vietnam, its enforcement has remained fundamentally incomplete.

¹³⁵ Nevitt, M., 2024, Pg. 1391.

¹³⁶ United Nations Environment Programme, 2024., Pgs. 18-19, 43.

¹³⁷ Jarose, J., 2024, Pgs. 476, 473.

¹³⁸ Clark, J. 2025, Pg. 13.

In the decades since the Vietnam War, the inability of international courts to prosecute large-scale environmental destruction has generated a sustained movement for reform. The Emmanuel concept of ecocide, first articulated during Vietnam to describe the deliberate devastation of ecosystems, has returned as both a scholarly and legal framework for addressing environmental harm in modern warfare. Vietnam's defoliation campaigns pushed scientists and policymakers to recognize that the environment itself was no longer a bystander but a deliberate target of those wishing to wage environmental warfare. This fundamentally reshaped global environmental consciousness and consideration during wartime. Emmanuel Kreike traces a longer history of "scorched-earth" warfare, arguing that modern militaries have repeatedly treated the natural world as a legitimate target of conflict.¹³⁹ Together, these works demonstrate that ecocide is not a rhetorical exaggeration but a historically grounded concept that reflects how environmental destruction has been normalized in military strategy. The resurgence of this language indicates a growing recognition that international law has failed to evolve at the same pace as the ecological consequences of war.

One of the clearest institutional responses to this failure appears in the United Nations International Law Commission's 2022 Draft Principles on the Protection of the Environment in Relation to Armed Conflicts. These Draft Principles represent the most comprehensive attempt yet to articulate environmental obligations before, during, and after hostilities. They call for states to prevent environmental harm in accordance with the various international treaties, to conduct environmental impact assessments, and to ensure post-conflict remediation and monitoring.¹⁴⁰ Karen Hulme describes this effort to recognize the problems with environmental law as a significant advance beyond ENMOD and Protocol I, claiming that it integrates

¹³⁹ Kreike, E. *Scorched Earth: Environmental Warfare as a Crime against Humanity and Nature*, Pg. 17.

¹⁴⁰ *Draft Principles on Protection of the Environment in Relation to Armed Conflicts*, 2022

environmental protection into humanitarian and criminal law rather than treating it as an ancillary concern.¹⁴¹ Yet the Draft Principles also expose the persistent structural weakness of international law. Like ENMOD and Additional Protocol I, they rely on voluntary state adherence, not binding enforcement. The Draft Principles therefore illustrate both progress and limitation: they reflect the international community's growing awareness of wartime environmental harm, while revealing that enforcement remains politically constrained.

Recent scholarship has focused on how existing international environmental law might be applied more effectively during and after conflict. Hulme's work on biodiversity demonstrates that conservation frameworks could provide concrete legal mechanisms for protecting ecosystems that are otherwise vulnerable during armed conflict.¹⁴² Mark Nevitt and J. N. Clark expanded this argument in the context of the Russia–Ukraine War, showing how current legal regimes remain heavily anthropocentric—albeit while trying to make a shift away from anthropocentrism—¹⁴³ prioritizing immediate human suffering over environmental systems whose recovery may take decades (Nevitt 2024; Clark 2025).¹⁴⁴ These scholars argue that international law's failure is not simply one of enforcement, but of conceptual framing. By treating the environment primarily as a resource for human survival rather than as a subject of legal protection in its own right, existing frameworks limit their own applicability.

The contemporary push for reform has also emerged through civil society and academic advocacy. The Stop Ecocide Foundation and related legal scholars have called for the formal recognition of ecocide as an international crime under the Rome Statute of the ICC. Joanna Jarose argues that such an amendment could transform ENMOD's largely symbolic prohibitions

¹⁴¹ Hulme, K., 2022, Pg. 22.

¹⁴² Ibid, Pg. 12.

¹⁴³ Clark, J., 2025, Pg. 13

¹⁴⁴ Nevitt, M., 2024, Pg. 1384.

into a viable legal standard for prosecuting environmental modification as a war crime.¹⁴⁵ Similarly, Isabela Pizarro's analysis of environmental destruction in Palestine frames recent conflicts in Gaza as examples of ecocide, underscoring that the problem identified in Vietnam persists in current warfare.¹⁴⁶ These reform movements highlight the growing gap between legal recognition and accountability. While environmental harm is increasingly documented, the ICC and ICJ remain reluctant to pursue prosecution without Security Council referral or state consent.¹⁴⁷

Current conflicts have made these reform debates increasingly urgent. In Gaza, United Nations assessments describe the collapse of water systems, contamination of soil, and long-term public health impacts, echoing the language of ecocide that first emerged during Vietnam.¹⁴⁸ In Ukraine, environmental researchers document industrial contamination, ecosystem damage, and severe health effects caused by the Russian invasion.¹⁴⁹ These studies demonstrate that the environmental impacts of war are neither hypothetical nor peripheral. They shape the material conditions of post-conflict recovery and raise serious questions about how international law defines humanitarian harm. Yet, as in earlier wars, these findings have not produced consistent legal action. The courts have recognized environmental devastation, but enforcement remains uncertain and largely symbolic.

Taken together, the renewed attention to ecocide and environmental reform shows a larger shift within both environmental history and international legal scholarship. From the Vietnam War through the present, the international community has steadily expanded the

¹⁴⁵ Jarose, J., 2024, Pgs. 510-511.

¹⁴⁶ Pizarro, I., 2025, Pgs. 34-35.

¹⁴⁷ Payne, C., 2016, Pg. 749.

¹⁴⁸ United Nations Environment Programme, 2024.

¹⁴⁹ Angurets, et. al., 2023

language of wartime environmental protection, yet has repeatedly failed to translate those norms into accountability. The Draft Principles of the ILC, the growing advocacy for ecocide as an international crime, and the increasing body of environmental impact research all point to the same unresolved issue: international law has acknowledged the environment as something worth protecting, but has not yet demonstrated the political or institutional capacity to defend it during war. The future of wartime environmental protection therefore depends not only on the development of stronger legal principles, but on the willingness of enforcement bodies such as the ICC and ICJ to treat environmental destruction as a prosecutable crime rather than a regrettable but acceptable consequence of armed conflict.

Conclusion:

The evolution of wartime environmental protection after the Vietnam War reflects one of the most important legal and moral shifts in the modern history of conflict. Prior to Vietnam, environmental destruction was generally viewed as an inevitable or acceptable byproduct of military necessity. Even early laws and treaties such as the Lieber Code and Hague Regulations recognized limits on devastation, yet still subordinated environmental restraint to the strategic demands of war. Vietnam altered this landscape by exposing the unprecedented ecological consequences of modern industrial warfare.¹⁵⁰ The widespread use of herbicides, defoliants, and environmental modification techniques made it clear that the environment itself had become both a target and a casualty.¹⁵¹

¹⁵⁰ Zierler, D., 2011, Pgs. 162, 165.

¹⁵¹ Ibid. Pg. 9.

In response, the international legal order expanded. The ENMOD Convention¹⁵² and Additional Protocol I¹⁵³ marked the first formalized attempt to prohibit intentional environmental damage in conflict, embedding environmental protection into humanitarian law. These developments suggested that the lessons of Vietnam had been institutionalized. Yet, as the case studies demonstrate, the creation of legal norms has not produced consistent accountability. Conflicts in Kuwait, Kosovo, Gaza, and Ukraine show that environmental destruction continues, even when it is clearly documented by international organizations and scholars. The environment is now formally protected in law, but it remains one of the most vulnerable and least defended victims of war.

The failure of enforcement lies at the center of this contradiction. The Rome Statute of the International Criminal Court¹⁵⁴ includes environmental destruction as a war crime, yet the evidentiary and proportionality standards required for prosecution have made enforcement nearly impossible in practice.¹⁵⁵ The International Court of Justice has similarly acknowledged that states have environmental obligations, but its authority remains advisory and politically constrained. Rather than serving as a prosecutorial mechanism, international law has largely shifted toward environmental assessments and remediation efforts that stop short of criminal accountability.

This structural weakness has produced a recurring historical pattern: environmental destruction is recognized, documented, and sometimes compensated, but almost never prosecuted. Vietnam was not simply the moment that produced modern wartime environmental

¹⁵² United Nations, Convention on the prohibition of military or any other hostile use of environmental modification techniques. 1976.

¹⁵³ United Nations, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1). 1977

¹⁵⁴ International Criminal Court, Rome Statute Article 8(2)(b) (IV). 1998.

¹⁵⁵ Payne, C., 2016, Pg. 739

law. It was also the moment that revealed the limits of that law. By the late twentieth and early twenty-first centuries, the international community had developed the language and principles for environmental protection, yet it remained unwilling or unable to enforce them against major military actors. Scholars such as Karen Hulme argue that without stronger mechanisms for accountability, wartime environmental law risks becoming symbolic rather than functional.¹⁵⁶

At the same time, recent reform movements show that the story of wartime environmental protection is still unfolding. The International Law Commission's Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (2022), along with civil society efforts to codify ecocide as an international crime,¹⁵⁷ represent attempts to close the enforcement gaps exposed since Vietnam Jarose 2024.¹⁵⁸ These developments suggest that while institutions like the ICC and ICJ have failed to enforce existing law, the broader international legal community continues to push for new approaches that treat environmental destruction as a crime rather than a regrettable outcome of conflict.

Ultimately, the trajectory of wartime environmental protection since Vietnam demonstrates both progress and failure. The international legal order has grown more sophisticated in its recognition of environmental harm, but enforcement has lagged behind. The environment is now part of the legal and moral framework of war, yet remains secondary to the priorities of state sovereignty and military necessity. This unresolved tension forms the foundation for future research. While this study has examined how environmental protection evolved after Vietnam, a deeper investigation of pre-Vietnam environmental restraint and

¹⁵⁶ Hulme, K., 2022, Pg. 25.

¹⁵⁷ United Nations Office of Legal Affairs, *Draft Principles on Protection of the Environment in Relation to Armed Conflicts*, 2022.

¹⁵⁸ Jarose, J., 2024.

destruction will help clarify whether Vietnam truly represented a rupture in legal thought or simply a continuation of earlier patterns.

Understanding that longer history offers the opportunity to place Vietnam and its aftermath within a broader environmental and legal context. By doing so, this research contributes to the growing field of environmental history that seeks not only to document how warfare destroys ecosystems, but to ask why international law continues to struggle in holding those responsible accountable.

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