The Failure of Environmental International Law During Times of War

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NOTE

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I. Introduction

Throughout history, war and armed conflict have maintained a continuous presence around the world. Though the reasons for war change, various nations emerge and subside, and populations alter, one of the constant elements of war is its degrading effect on the environment. In addition to indirect effects on the environment that ultimately result from war, nations have used the environment as both a weapon and target of war. For example, during the Peloponnesian War, the Spartans salted Athenian lands to make them infertile. In the Franco-Dutch War from 1672 to 1678, dikes and dams were destroyed in order to create massive flooding. Lastly, during the Vietnam War, the United States implemented a strategy that included massive rural bombings, chemical and mechanical deforestation, and large-scale crop destruction.

The international community has shown concern over and condemned this kind of wanton destruction of the environment. Prohibitions against it are found in several treaties including the Additional Protocol I of the Geneva Convention of 1949 (Additional Protocol I), the Convention on the Prohibition of Environmental Modification Techniques (ENMOD), and the Rome Statute of the International Criminal Court (Rome Statute). However, extensive environmental damage from war, including widespread desertification and air and

2. Id. at 146-147.
5. Id. at 655.
6. Id. at 657.
water pollution, continues to exist today. The continuous nature of 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.

The necessity of protecting the environment from unjustified damage has not adequately been addressed despite the growth of military weapons and the violence that they can cause. In order to prevent destruction of the environment during war, international law must place enforceable limits on environmental damage. Determining how to place these limits can be very important in a world with animosities that could boil over into armed conflict at anytime. Overall, there have been two different views on how to proceed: modify existing law so that it is properly implemented or create new international law.

This comment will analyze current international laws that prohibit the destruction of the environment during wartimes and argue that these agreements are ineffective in their application. Specifically, it will provide an overview of three principle international agreements that have recently emerged to protect the environment from the harms of war. The inconsistencies of how environmental damage is defined as well as the limitations of when these agreements apply have led to environmental destruction without fear of punishment. In order to effectively prevent this kind of wanton destruction, this comment will offer solutions on how to hold nations accountable for their actions while repairing the damage inflicted on the environment. This includes broadening the scope of these international agreements to apply to all types of environmental harm and all nations who have the ability to harm the environment.

II. Background

A. Definition of the Environment

Coming to a concise definition of the environment can be difficult when describing international law involving environmental warfare. Modern thought attributes the environment to all natural features that make up the world’s ecosystem. This includes the composition

9. Catera, supra note 7, at 630.
11. Parsons, supra note 3, at 443.
12. Id.
13. Id.
15. Id. at 485.
of the atmosphere, various types of land formations, and organisms such as animals and plants. Some international agreements have attempted to define the environment in this context, but with only limited success. In addition to prohibiting environmental modification as a means of warfare, ENMOD defined the environment as “the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.” Unfortunately, this definition is very broad and provides little clarity. Such a definition makes it difficult to enforce international agreements, as all forms of war and armed conflict would have some type of impact on the environment.

Some in the international community have defined the environment as “anything that is not man-made.” They argue that the environment is best defined broadly, so that any adverse change to the existing status of the environment constitutes environmental damage. Also, the only reason for defining the environment and environmental damage is an attempt to put an absolute limit on environmental damage that cannot be exceeded. These broad definitions of the environment reflect a growing belief by the international community that environmental protections should be extended to all different situations involving war and armed conflict, no matter what the degree.

Compounding the struggle to enforce international agreements that endeavor to protect the environment are two competing views as to why the environment requires protection – the “utilitarian” and “intrinsic value” doctrines. The utilitarian doctrine values the environment for what it provides all living organisms – air, food, shelter, etc. – and supports the protection of the environment only in so far as it provides means to further human beings ends and purposes. By contrast, the intrinsic value doctrine claims that the environment has intrinsic value, beyond the value it has for human beings and suggests that in order to protect the environment environmental issues should be filtered through a lens that places greater emphasis on the environ-

16. Id.
17. Jensen, supra note 1, at 149.
19. Id.
21. Sharp, supra note 18, at 32.
22. Id.
23. Id.
24. Id.
26. Id.
ment than on human interests.\textsuperscript{27} While not generally accepted by nations, the intrinsic value doctrine has been gaining favor in the international community due to its emphasis on providing greater protections for the environment.\textsuperscript{28}

\textbf{B. Environmental Affects of War}

In addition to the impact on society, multiple facets of the environment are affected during times of war.\textsuperscript{29} The twenty-first century has created a much greater and more lethal risk due to the technological advances in military weaponry and tactics.\textsuperscript{30} There are three main areas of the environment that are adversely affected by war – water systems, land, and air quality.\textsuperscript{31} First, the use of high-powered weaponry and dumping of toxic wastes contribute to the contamination of water sources.\textsuperscript{32} This not only affects water supply systems that cities rely on, but also destroys the ecosystems in the area.\textsuperscript{33} During the campaign in Iraq in 1991, the U.S. military used approximately 340 tons of missiles containing depleted uranium, a dense metal made from low-level radioactive waste.\textsuperscript{34} The chemical residue of these weapons contaminated several groundwater sources.\textsuperscript{35}

War also contributes to air pollution due to the release of high levels of greenhouse gases.\textsuperscript{36} Emissions from the use of military vehicles, machinery, and weaponry contribute to ground level and atmospheric levels of air pollution.\textsuperscript{37} In 2008, the U.S. military used millions of barrels of oil in Iraq to fuel military vehicles.\textsuperscript{38} These military vehicles produced hundreds of thousands of tons of harmful gases including carbon monoxide, nitrogen oxides, hydrocarbons, and carbon dioxide.\textsuperscript{39}

\begin{itemize}
  \item \textsuperscript{27} Id.
  \item \textsuperscript{29} Jessica Adley \& Andrea Grant, \textit{The Environmental Consequences of War}, ENVIRONMENTALISTS AGAINST WAR (Jan. 6, 2008), http://www.envirosagainstwar.org/known/readonly.php?itemid=6360.
  \item \textsuperscript{30} Id.
  \item \textsuperscript{32} Adley \& Grant, supra note 29.
  \item \textsuperscript{33} Id.
  \item \textsuperscript{35} Id.
  \item \textsuperscript{36} Id.
  \item \textsuperscript{37} Haynes, supra note 31.
  \item \textsuperscript{38} Environmental Costs, supra note 34.
  \item \textsuperscript{39} Id.
\end{itemize}
Lastly, the use of military machinery and toxic chemicals has caused unprecedented levels of deforestation and habitat destruction. The use of military machinery and toxic chemicals has caused unprecedented levels of deforestation and habitat destruction. 

De-forestation causes a serious disruption to ecosystem services, including erosion control, water quality, and food production. During the Cambodian Civil War, 35% of Cambodia’s intact forests were destroyed due to illegal logging. Widespread flooding resulted, damaging rice crops and causing food shortages. These are just a few examples that show the severe effect of war on the environment. Without any effective law to prevent these kinds of actions, the potential magnitude of environmental destruction will increase.

C. International Law of War

i. Customary Principles of War

The foundation for current international laws, specifically those regulating the laws of war, can be found in customary principles of international law. These are unwritten principles that have generally been accepted by the world’s military forces and remain significant despite the adoption of modern agreements. There are three core principles that have been long respected in the law of war: military necessity, proportionality, and the avoidance of unnecessary suffering (or humanity). As with any decision to engage in combat, nations have to balance competing interests, including taking these customary principles into consideration. This means balancing the means and methods of military combat to the extent that human interests outweigh environmental interests, from a utilitarian point of view, or vice versa, from an intrinsic value perspective.

The first principle, military necessity, provides that a combatant is justified in applying any force necessary to secure the complete submission of the enemy as soon as possible – as long as the means are not prohibited by provisions of the law of war. In other words, military necessity places restrictions on the degree of force that may be
used. 52 Any destructive act must be necessary for prompt submission of the enemy, use the least amount of resources, and cannot be prohibited by law. 53 This principle was originally embodied by the Hague IV Convention, which in Article 23(g) prohibits acts that "destroy or seize the enemies property, unless such destruction or seizure be imperatively demanded by the necessities of war." 54 Though there is discussion over whether the article applies to all property or just state property, both the U.S. Army and the International Committee of the Red Cross adopted it in order to protect any property, however situated or owned. 55

Next, the humanity principle resembles the utilitarian point of view by prohibiting methods and means of warfare that are inhuman or cause needless suffering. 56 It can be violated with respect to the environment in many ways, such as poisoning water supplies or dispersing chemical agents to infect a human population or contaminate its crops and livestock. 57 The heart of this principle is the idea that mili­tants should not take certain actions targeting human populations. 58 Traditionally, the humanity principle strictly pertained to direct human suffering, so that while certain acts, such as torture or rape, were impermissible under any circumstance, it did not lend the same kind of prohibition to acts on the environment that had an indirect effect on humans. 59 However, the devastation from wars in the last few decades has suggested a shift in the scope of the principle to include actions affecting the environment. 60

Finally, the proportionality rule prohibits methods of warfare likely to cause injury to civilians in excess of any concrete and direct military advantage. 61 This principle operates as a medium between military necessity and humanity, and emphasizes that the loss of life and property be in proportion to the execution of the military objective. 62 Inherent

53. Id.
54. Foreign Treaties and International Agreements; [Multinational], 36 Stat. 2277, 2302 (Oct. 18, 1907).
55. Schmitt, supra note 28, at 63.
56. Declaration of St. Petersburg Renouncing the Use of in Time of War of Explosive Projectiles under 400 Grammes in Weight, (Nov. 29, 1868), re­printed in 1 AM. J. INT'L L. 95.
58. Id.
59. Cohan, supra note 14, at 496.
60. Id.
61. Simonds, supra note 10, at 168.
62. Id.
in the proportionality principle is the element of discrimination. Discrimination requires weapons and tactics to clearly discriminate between military objectives and civilian targets. Indiscriminate attacks are prohibited by international law, but do not include attacks that indirectly cause collateral or incidental damage to civilians or property. The difficulty with this principle is that it requires militants to calculate what the value of life and property is in order to decide what is proportional. This becomes a problem when these values differ dramatically across different populations.

ii. Environment-Specific Treaty Law

Military actions have always adversely impacted the environment, however, only in the past several decades has the international community begun to take notice of the impact. Specifically, not until the Vietnam War did international attention focus on the issue of the environment. Ecocide, the willful destruction of the environment, was coined during the Vietnam War due to strategic and tactical decisions that directly targeted the environment. In 1977 two significant developments were produced with the intent of protecting the environment during armed conflict – Additional Protocol I and ENMOD.

There are two provisions in Additional Protocol I that explicitly address the environment – Articles 35(3) and 55(1):

ARTICLE 35. BASIC RULES.
1. In any armed conflict, the right of the Parties to the conflict to choose methods and means of warfare is not unlimited.
2. It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.
3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause wide-

64. Id.
65. Id.
67. Id.
69. Id at 1053.
71. Id at 149.
spread, long-term and severe damage to the natural environment.\textsuperscript{72}

\textbf{ARTICLE 55. PROTECTION OF THE NATURAL ENVIRONMENT.}

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.

2. Attacks against the natural environment by way of reprisals are prohibited.\textsuperscript{73}

Despite the overlap between Article 35(3) and 55(1) regarding "widespread, long-term and severe damage," there is a slight distinction.\textsuperscript{74} Taken as a whole, the primary difference between Additional Protocol I and other international agreements is that once the degree of damage to the environment reaches a certain level, Additional Protocol I does not employ a balancing of the customary principles of international law.\textsuperscript{75} Instead, this level is established as an absolute maximum of destruction.\textsuperscript{76} Once environmental destruction reaches a certain point, the limit on "widespread, long-term and severe" violates Article 35(3) and the military action causing it must stop.\textsuperscript{77}

On the other hand, Article 55(1) includes an additional factor in the analysis by requiring that the environmental damage in question threaten "the health or survival of the population" before being prohibited.\textsuperscript{78} In other words, Article 55(1) sets a standard measured by the environmental impact on human beings.\textsuperscript{79} The purpose for this ambiguous approach was to satisfy advocates of the intrinsic value doctrine in Article 35 by setting terms strictly regarding the environment, and opponents who support the utilitarian doctrine in Article 55 by factoring humans into the equation.\textsuperscript{80}

The second treaty that was drafted as a result of the Vietnam War was the 1977 ENMOD Convention.\textsuperscript{81} The purpose of ENMOD is to limit the use or modification of the environment as a tool or weapon

\textsuperscript{72} Protocol Additional to the Geneva Conventions of August 12, 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I].
\textsuperscript{73} Id.
\textsuperscript{74} Id.
\textsuperscript{75} JUDGE ADVOCATE GEN.'S SCH., OPERATIONAL LAW HANDBOOK 14-18 (1998).
\textsuperscript{76} Id.
\textsuperscript{77} Additional Protocol I, supra note 72.
\textsuperscript{78} Id.
\textsuperscript{79} Richards & Schmitt, supra note 68, at 1061.
\textsuperscript{80} Id.
\textsuperscript{81} Roman Reyhani, Protection of the Environment During Armed Conflict, 14 Mo. ENVT. L. & POL'Y REV. 323, 324 (2007).
although the language is very similar to Additional Protocol I. \(^{82}\) Article I of ENMOD states this objective:

1. Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.

2. Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article. \(^{83}\)

Environmental modification techniques refers to “any technique for changing – through the deliberate manipulation of natural processes – the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.” \(^{84}\) While ENMOD does use the same parameters – “widespread, long-lasting or severe” – as Additional Protocol I, it does not limit them to effects on the natural environment. \(^{85}\) Furthermore, Additional Protocol I requires all three criteria to be met before its provisions can take effect while ENMOD simply requires any one of the three be met. \(^{86}\) Still, confusion exists between the meanings of “widespread,” “long-lasting,” and “severe.” \(^{87}\) The Conference of the Committee on Disarmament produced the following definitions:

It is the understanding of the Committee that, for the purposes of this convention, the terms “widespread”, “long-lasting” and “severe” shall be interpreted as follows:

a) “Widespread”: encompassing an area on the scale of several hundred square kilometers;
b) “Long-lasting”: lasting for a period of months, or approximately a season;
c) “Severe”: involving serious or significant disruption or harm to human life, natural and economic resources or other assets.

It is further understood that the interpretation set forth above is intended exclusively for this Convention and is not intended to prejudice the interpretation of the same or simi-

\(^{82}\) Id.


\(^{84}\) Id.

\(^{85}\) Susan Chamorro & Edward Hammond, Post-Cold War Conflict and the Environment, SUNSHINE PROJECT (Sept. 29, 2001), http://www.sunshine-project.de/Themen/enmod/enmod_pos_cold_war.html.

\(^{86}\) Id.

\(^{87}\) Id.
lar terms if used in connection with any other international agreement.88

Struggling to actually hold nations who violated these treaties accountable, the international community adopted the Rome Statute in July 1998.89 Along with establishing an International Criminal Court (ICC) to act as an enforcement mechanism, the Rome Statute independently sanctioned environmental war crimes and provided for the punishment of those who committed such crimes.90 Under the language of the Rome Statute, intentional infliction of harm to the environment would constitute a war crime that would require some form of punishment.91 More specifically, Article 8(2)(b)(iv) of the Rome Statute prohibits:

Intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated.92

There are three principal components to the language of Article 8(2)(b)(iv):

(1) the actual physical act, which consists of inflicting 'widespread, long-term and severe damage' to the natural environment; (2) the mens rea, namely that the infliction of this harm must be done intentionally and with knowledge that the attack will create 'widespread, long-term and severe damage' to the natural environment; and (3) even if both the physical and mental elements are found, military advantage can operate as a defense to criminal wrongdoing.93

In order to prosecute someone under the Rome Statute that individual must have launched an attack that caused "widespread, long-term, and severe damage to the natural environment."94 Similar to Additional Protocol I, a conviction can only result after it is determined that all three elements are conjunctively proven.95 Unfortunately, the Rome statute is silent on the specific meaning of

88. ENMOD, supra note 83.
90. Id. at 306-10.
92. Id.
93. Drumbl, supra note 89, at 314.
94. Rome Statute, supra note 91.
95. See id.
“widespread,” “long-term,” and “severe.”96 However, prior existing international law has determined that “widespread, long-term and severe” describes the “the size of the geographical area affected by the damage, its persistence in time, and the extent or intensity of the damage.”97

After these elements have been proven, criminal sanction will only fall upon an individual who knows his or her behavior will cause widespread, long-term, and severe damage to the environment and, albeit proof of this knowledge, still commits the act with the full intention of causing the environmental damage.98 In other words, the individual must be found to have acted intentionally and with knowledge that the attack will cause the prohibited environmental damage.99 The United Nations has interpreted the word “knowledge” as requiring the person committing the act to know that the desired consequences would occur, and determined that it is inferred from relevant facts and circumstances.100 It is important to note that there is no liability for negligently or carelessly inflicting widespread, long-term, and severe damage to the environment, which means that persons who are found to act negligently will not face any sanction at all.101

Even if intentionally widespread, long-term, and severe damage is inflicted on the environment, liability is only found if the damage is clearly excessive in relation to the concrete and direct overall military advantage anticipated.102 This limitation on liability is similar to the principle of military necessity in that a proportionality test must be applied to determine if any harm that is inflicted on the environment is additional to the harm necessary to complete the military objective.103 Although the Rome Statute does not provide any definitions or examples of what is “clearly excessive,” states have expressed a common understanding that the military advantage anticipated from an attack is intended to refer to the attack as a whole and not from isolated or particular parts of the attack.104

III. Issue: Ineffectiveness of International Agreements

The continuation of environmental destruction without fear of punishment and lack of accountability for war-related crimes since

96. See id.
97. ENMOD, supra note 83.
98. See Rome Statute, supra note 91.
100. Id.
101. See Rome Statute, supra note 91.
102. Id.
103. Drumbl, supra note 89, at 319-21.
104. Id.
Nuremburg illustrate the ineffectiveness of international law as a deterrent. Several reasons exist that explain why international law has not been a successful tool in prosecuting environmental war crimes. First, the laws that operate to safeguard the environment exhibit overall vagueness and inconsistency. Specifically, there is a lack of international consensus in the application of international agreements. The three agreements previously mentioned all proscribe “widespread,” “long-term,” and “severe” damage to the natural environment. However, problems arise when trying to reconcile the meaning of these terms because they are either very broadly defined or not defined at all within the agreement.

Additional Protocol I, ENMOD, and the Rome Statute all place a limit on the kind of environmental destruction that can be tolerated. This fact alone presupposes that these agreements will accept a certain amount of harm to the environment. Regardless, several forms of military activity remain insufficiently regulated. Collateral damage that results from warfare is not specifically mentioned in any of the agreements and even intentional, and direct damage to the environment is permissible if it does not fall under any of the required provisions. One provision, in particular, requiring militants to implement a proportionality test to balance what is required to meet the military objective against harm to the environment is unclear due to the lack of a set standard.

Another problem with these international agreements is that they only apply to nations that have ratified them. This can be an issue when trying to deter nations from taking actions that harm the environment if they participate in large-scale military activities worldwide, and the international agreements have no authority. For example, the United States has not ratified either Additional Protocol I or the Rome Statute, and although they have ratified ENMOD, it only specifically applies to the manipulation of the environment as a weapon. As a result, under these agreements the United States can contribute

106. Catera, supra note 7, at 635.
108. Id.
109. Additional Protocol I, supra note 72, at 21; ENMOD, supra note 83, at 3; Rome Statute, supra note 91, at 6.
111. Diederich, supra note 70, at 152.
112. Id.
113. Id.
114. Id.
115. Id.
116. Id.
117. Id.
to the destruction of the environment during times of war either as a direct or indirect act.

Finally, the ICC, which was established by the Rome Statute, has not been effective in deterring environmental crimes. One issue is that the ICC has jurisdiction over and punishes crimes of genocide, crimes against humanity, and war crimes. Environmental damage during times of war is a relatively small category within these offenses and, as a result, is often overlooked. The judges that make up the ICC typically do not have the expertise in the area of environmental law and are, therefore, less likely to come to a viable ruling. Also, the jurisdiction of the ICC is limited to natural persons. This limitation makes it impossible to hold the state or military liable for the environmental damage it causes. Finally, the punishments that are enforced are based on imprisonment and fines. This excludes restitution and civil liability, which would repair the harm that was caused to the environment.

IV. Analysis

A. The Gulf War

Over two decades have passed since the Gulf War, yet it remains an unsettled event. While insignificant in political history, the Gulf War truly made visible the disturbing effects of war on the environment. Environmental destruction, previously regarded as incidental to war, became a fundamental part of military strategy. The Gulf War was termed an “eco-war” due to the deliberate attacks that the Iraqi military made against the environment. Outraged by these acts, states and international organizations demanded that Iraq be held accountable for the actions its military took. Unfortunately,

120. Id.
121. See Mark Kielsgard, War on the International Criminal Court, 8 N.Y. CITY L. REV. 1, 8-9 (2005).
122. Drumbl, supra note 118, at 149.
123. Id. at 150.
124. Id.
125. Id.
127. Id.
129. Id. at 406.
130. Id.
neither Additional Protocol I nor ENMOD were able to provide this kind of remedy.

On August 2, 1990, Iraqi troops invaded the neighboring nation of Kuwait.\textsuperscript{131} Iraq's President, Saddam Hussein, wanted to seize control over Kuwait due to disputes over oil production and sales.\textsuperscript{132} President Hussein believed that because Kuwait had historically been situated within Iraq's borders, Iraq was entitled to Kuwait's oil resources and revenues.\textsuperscript{133} The United Nations closely monitored the Iraqi occupation of Kuwait and drafted a series of resolutions mandating the unconditional withdrawal of Iraqi forces.\textsuperscript{134} When the deadline for withdrawal expired, a coalition of military forces was authorized to use force against Iraq for failing to comply with the withdrawal order.\textsuperscript{135} Intense bombing in Iraq ensued, causing Iraqi forces to retaliate by launching an attack on the Persian Gulf.\textsuperscript{136}

Iraqi forces bombed one of the largest oil fields in Kuwait, two major mainland refineries, an offshore loading terminal, and anchored tankers.\textsuperscript{137} The burning oil wells emitted dense smoke that detrimentally affected the air quality in the region.\textsuperscript{138} Outbreaks of respiratory and skin disorders occurred due to air containing the oil fire's noxious fumes.\textsuperscript{139} Also, Iraq pumped several million barrels of oil into the Persian Gulf from supply lines between refineries and an offshore terminal, creating a slick at least nine miles long.\textsuperscript{140} The spill affected wildlife in the region and contaminated the freshwater supply to bordering nations.\textsuperscript{141}

Under these circumstances, it would be rational to think that both Additional Protocol I and ENMOD would apply, however, neither did. There are several reasons why Iraq did not violate Articles 35(3) and 55(1) of Additional Protocol I by spilling oil into the Gulf and burning Kuwaiti oilfields.\textsuperscript{142} First and foremost, Iraq has not signed or rati-

\textsuperscript{132} Id.
\textsuperscript{133} Id.
\textsuperscript{135} Id.
\textsuperscript{136} Id. at 486.
\textsuperscript{138} Id. at 717.
\textsuperscript{139} Seacor, supra note 134, at 487.
\textsuperscript{141} Id.
\textsuperscript{142} See Low & Hodgkinson, supra note 128, at 427.
fied Additional Protocol I, so it is not bound by its prohibitions.\(^{143}\) Nonetheless, if Iraq were a party to the agreement, it still would not have breached the terms.\(^{144}\) Articles 35(3) and 55(1) do not apply to conventional warfare.\(^{145}\) The text of Additional Protocol I states, "battlefield damage incidental to conventional warfare would not normally be proscribed by this provision."\(^{146}\) While conventional warfare is not explicitly defined, it includes oil spills and oil fires.\(^{147}\) The United States Department of Defense stated, "the prohibitions on damage to the environment contained in Protocol I were not intended to prohibit battlefield damage caused by conventional operations and, in all likelihood, would not apply to Iraq's actions in the Persian Gulf War."\(^{148}\) Finally, the oil spills and oil fires did not cause "widespread, long-term, and severe damage."\(^{149}\) While widespread and severe are undefined, long-term refers to "several decades."\(^{150}\) None of the actions taken by Iraq could be considered long-term in this sense; therefore, they do not meet the threshold.\(^{151}\)

Similar to Additional Protocol I, Iraq is not bound by the prohibitions in ENMOD because it has not ratified the convention.\(^{152}\) However, even if Iraq were bound, it still would not have violated any of the terms within the agreement.\(^{153}\) ENMOD strictly prohibits environmental modification techniques that change the environment through the deliberate manipulation of natural processes.\(^{154}\) Although there are few examples of what qualifies as an environmental modification technique, it is unclear whether oil spills and oil fires would fall under this standard.\(^{155}\) Many writers who have attempted to interpret the agreement have determined that the environment was not used as a weapon during the Gulf War.\(^{156}\) "It might well be asserted that this was, rather, a case of the deliberate abuse of man-made installations and artificial processes of damage to the environ-

\(^{143}\) Id.

\(^{144}\) Id.


\(^{146}\) See Additional Protocol I, supra note 72.


\(^{148}\) Id. at 637.


\(^{150}\) Id.

\(^{151}\) Id.

\(^{152}\) Low and Hodgkinson, supra note 128, at 430.

\(^{153}\) Id. at 431.

\(^{154}\) ENMOD, supra note 83.

\(^{155}\) Low and Hodgkinson, supra note 128, at 432.

\(^{156}\) Id.
B. Darfur

In 2003, two Darfuri rebel organizations – the Sudan Liberation Army and the Justice Equality Movement – took up arms against the Sudanese government due to the uneven development and socioeconomic marginalization in Darfur. In order to fight the insurrection, the Sudanese government employed Arab militias known as Janjaweed, which operated as a supplement to the Sudanese Army. However, these forces directly targeted millions of civilians in Darfur. Hundreds of villages were destroyed and numerous crimes against humanity were committed, including murder, rape, and pillaging. In addition to these crimes, the conflict accelerated the environmental degradation of Darfur that had been occurring over many years. The main concern was uncontrolled deforestation because of the reliance on timber and wood to fuel the war. Also, militants burnt and destroyed crops and livestock leaving vast farmland arid.

The ICC’s investigation into the conflict in Darfur officially opened in 2005 after being referred by the United Nations Security Council. However, it has failed to prosecute any of the individuals responsible for the crimes that took place. The ICC ordered Sudanese President Omar al-Bashir, his Defense and Interior Minister, and a militia leader to face charges of war crimes and crimes against humanity. Even though Sudan is a signatory to, but has not ratified the Rome Statute and consistently rejects ICC jurisdiction over its nationals and crimes committed in its territory, the ICC can still proceed without the consent of the respective state.

157. Id.
159. Id.
160. Id.
163. Id.
164. Id.
165. Kastner, supra note 161, at 164.
167. Id.
168. Kastner, supra note 161, at 146.
The ineffectiveness of the ICC in this case stems from the lack of cooperation with Sudan and the absence of an actual investigation. Chief prosecutor Fatou Bensouda stated that "given this council’s lack of foresight on what should happen in Darfur, I am left with no choice but to hibernate investigative activities in Darfur as I shift resources to other urgent cases." As a result, the victims of these attacks are left without any justice and the environment is left unrepaired.

C. Solutions

i. Improve Existing International Agreements

To adequately protect the environment during times of war and hold those who cause environmental destruction responsible, existing international law must change. Both Additional Protocol I and ENMOD should be amended, or rejected altogether to allow a new international agreement, in order for international law to be effective. Regardless, international law must be structured in a way that is specific and can be understood by the international community. This means that terms such as “widespread,” “long-term,” and “severe” should be specifically and similarly defined if present in other international agreements. This will prevent any confusion in trying to interpret these terms, such as the case in attempting to apply Additional Protocol I and ENMOD to the Gulf War. In addition, any amendment or new proposal must be fashioned to protect the environment in all types of conflicts. This includes incidental or indirect damage to the environment, in addition to directly targeting or manipulating the environment.

Next, international law should not distinguish between who is and is not a party to the agreement, but should apply worldwide. The key detriment to Additional Protocol I and ENMOD is its failure to apply to those nations that do not ratify or sign the agreement.
this standard, several nations are able to inflict damage against the environment without punishment from international law.  

Individually, Article 35(3) of Additional Protocol I should be modified to reduce the requirement of liability for environmental damage. Instead of requiring a state or individual to meet all three elements: (1) widespread; (2) long-term; and (3) severe, it would be beneficial if, like ENMOD, liability were based on the occurrence of only one element. Environmental damage that is described as widespread, long-term or severe presents a danger to the environment and should be treated as such. On the other hand, both Article 2 and 3 of ENMOD limit the application of the agreement. Article 2 refers to environmental modification techniques as deliberate actions. Article 3 discounts the application of ENMOD to environmental modification techniques that are used for peaceful purposes. ENMOD should provide that any direct or indirect action that causes damage to the environment is a violation, regardless of whether it occurs in times of armed conflict or peace.

In order to ensure the long-term success of the ICC, there are several adjustments that must be made. First, in order to become more efficient, there must be rules in place to ensure the full support of all the states that have either signed or ratified the Rome Statute. This includes implementing consequences for disobedience such as economic sanctions, trade sanctions, or aid reduction, if states refuse to bring forward ICC fugitives. Another solution is to broaden the requirements of the Rome Statute relating to the type of environmental damage that is prohibited. Because the ICC only prosecutes the intentional infliction of environmental harm, it does not deter the activities that cause the greatest amount of harm, negligent or reckless conduct. Alternatively, in order to repair the environment back to its former condition, the ICC should hold individuals civilly liable in addition to or instead of imprisonment.

181. See generally Additional Protocol I, supra note 72; ENMOD, supra note 83; Rome Statute, supra note 91.
182. See Additional Protocol I, supra note 72.
183. See ENMOD, supra note 83.
184. Id.
185. Id.
186. Id.
187. Id.
188. Id.
190. Id.
191. Id.
192. Drumbl, supra note 89, at 332.
193. Id.
194. Id.
Next, the ICC should undertake the task of encouraging the United States to sign and ratify the Rome Statute.\textsuperscript{195} If accomplished, the ICC would receive more support, in terms of financial assistance, and power, which would enable the court to function properly.\textsuperscript{196} In order for the United States to sign and ratify the Rome Statute, the ICC would need to add an amendment to the agreement specifying that terrorist acts and environmental damage are considered war crimes.\textsuperscript{197}

ii. Eliminating Dangerous Military Weaponry

Aside from altering current international law, harm to the environment can be prevented by eliminating the source – weapons that cause widespread destruction.\textsuperscript{198} Instead of attempting to define "widespread, long-lasting, and severe," international law could create legislation to eliminate the manufacturing and use of all weapons that have the ability to violate these conditions. The most damaging weapons are indiscriminate and have the potential for large-scale damage.\textsuperscript{199} Examples include nuclear, chemical, and biological weapons and certain types of explosives.\textsuperscript{200} Despite the fact that many states are committed to eliminating these weapons, there are still several states that possess them.\textsuperscript{201} The existence of these weapons creates the potential for destruction and proliferation of weapons in other states.\textsuperscript{202}

Unfortunately, prohibiting a category of weapons based on its environmental impact would be difficult to define and costly to implement.\textsuperscript{203} However, rehabilitating the environment after using dangerous military weapons could be even more difficult and costly. Also, dismantling these weapons would avoid inflicting future environmental harm. Another way to limit the use of dangerous weapons is to increase the use of armed force as a mechanism to deter environmental damage during armed conflict.\textsuperscript{204} This includes intelligence-gathering capabilities, such as space based and aerial reconnaissance, to identify existing threats.\textsuperscript{205}

\textsuperscript{195} Donovan, \textit{supra} note 189.
\textsuperscript{196} Id.
\textsuperscript{197} Id.
\textsuperscript{199} See id.
\textsuperscript{200} Id.
\textsuperscript{201} Id.
\textsuperscript{202} Id.
\textsuperscript{203} Simonds, \textit{supra} note 10, at 215.
\textsuperscript{204} Parsons, \textit{supra} note 3, at 495.
\textsuperscript{205} Id.
iii. Increasing Environmental Awareness and Justice

Greater transparency between the government and the public is crucial to ensure adequate protection of the environment. When public concern for the environment reaches a certain level, the government is likely to take such concerns into consideration before engaging in any military action. Due to the potential for public concern, information about environmental damage that is inflicted by the government should not be kept from the public. A system of sharing information should be established worldwide to allow the public to know the environmental effects of every military operation. For example, in the United States, the Emergency Planning and Community Right to Know Act of 1986 gathers information about toxic chemicals and makes it available to the public.\textsuperscript{206} The Environmental Protection Agency maintains a publicly accessible computer database and discloses information to the public.\textsuperscript{207} The information allows the public to identify environmental concerns.\textsuperscript{208}

Additionally, due to the effect of environmental harm during warfare, the public should have a means of access to environmental justice. Any person affected by the environmental consequences of military action should be able to receive some form of compensation for the damage that they suffered to their health, welfare, etc.\textsuperscript{209} Both public access to information and environmental justice will have a positive effect on the environment by causing states to think carefully before engaging in any activity that may harm human health or the environment.

iv. Creation of a Fund to Restore the Environment

Due to environmental destruction in times of war, responsible parties should be obligated to pay the expenses of cleanup and rehabilitation of the environment.\textsuperscript{210} However, states do not easily admit their responsibility for environmental damage and it can take a long time to attribute liability to a certain state.\textsuperscript{211} Therefore, to ensure effective environmental rehabilitation, an international fund should be established.\textsuperscript{212} Taxing states that export arms technology, such as the United States, Russia, North Korea, South Africa, and Israel, could finance an international fund.\textsuperscript{213} If these states benefit from selling

\textsuperscript{206} Citizens for a Better Env't v. Steel Co., 90 F.3d 1237, 1239 (7th Cir. 1996).
\textsuperscript{207} Id.
\textsuperscript{208} Id.
\textsuperscript{210} Id.
\textsuperscript{211} Id.
\textsuperscript{212} Id.
\textsuperscript{213} Id.
arms and weapons, they must also alleviate the negative environmental effects potentially caused by their technologies.\textsuperscript{214} If a state takes significant efforts to avoid responsibility for its actions or is financially unable to pay for the expenses, the fund could then be used to help restore the environment.

v. Employ Peacekeeping Forces

The employment of peacekeeping forces could strengthen international environmental law.\textsuperscript{215} Currently, the United States military and other nations engage in numerous peacekeeping operations.\textsuperscript{216} This trend should expand to a global peacekeeping power consisting of multinational armed forces.\textsuperscript{217} Consistent with peacekeeping operations, the organization could assist with environmental and humanitarian protection.\textsuperscript{218} The organization could create economic disincentives to nations that manufacture and produce environmentally injurious military technology.\textsuperscript{219} Other duties could include the monitoring and reporting of environmental damage.\textsuperscript{220} The environment has been used as a military target in recent war so peacekeeping forces could monitor the use of military weapons and report any deliberate attacks on the environment.\textsuperscript{221} When the peacekeeping forces possess sufficient capabilities, it should also employ force when necessary, tailored to military and political circumstances used to deter, prevent, and punish offenders.\textsuperscript{222}

vi. Revise Military Manuals

Incorporating environmentally friendly rules of law in national military manuals could act as a secondary deterrent behind international law to prevent armed forces from inflicting harm to the environment both within the state and abroad.\textsuperscript{223} For instance, if military manuals prohibited the use of certain weapons or prohibited tactics that took advantage of the environment, then the military would comply with the requirement regardless of conflict within the state or abroad.\textsuperscript{224} Moreover, if nations such as the United States were to include environmentally friendly practices in military manuals then it may present a model for other nations to adopt.\textsuperscript{225} Overall, such practices would

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\textsuperscript{214} Id.  \\
\textsuperscript{215} Drumbl, supra note 118, at 151.  \\
\textsuperscript{216} Parsons, supra note 3, at 495-96.  \\
\textsuperscript{217} Id.  \\
\textsuperscript{218} Drumbl, supra note 118, at 151.  \\
\textsuperscript{219} Id.  \\
\textsuperscript{220} Parsons, supra note 3, at 496.  \\
\textsuperscript{221} See id.  \\
\textsuperscript{222} Id.  \\
\textsuperscript{223} Al-Duaij, supra note 209.  \\
\textsuperscript{224} Id.  \\
\textsuperscript{225} Id.
\end{flushleft}
not only be designed to prohibit environmental damage, but also pun­ish those who commit unjustified damage. 226

D. Current Issues

The present threat and violence of the Islamic State of Iraq and Syria (ISIS) has led several nations, including the United States, to engage in some form of armed conflict against them.227 ISIS is be­lieved to consist of up to 30,000 combatants and continues to grow as the extremist group spreads further into Iraq and Syria.228 These com­batants have displayed numerous inhumane acts through videos that show ISIS fighters torturing and executing unarmed prisoners.229 The United States has recently launched several rounds of airstrikes in an attempt to cripple the growth of ISIS.230 The airstrikes targeted ISIS oil installations used to turn crude oil into a refined product that can be smuggled to buyers in Turkey and Iraq.231 Government officials say that ISIS earns approximately $2 million a day from illegal oil sales.232

However, the airstrikes are causing concern based on the possible environmental consequences that it can cause.233 Officials said that the attacks specifically on small-scale oil refineries instead of fixed oil fields were intended to minimize the potential for environmental damage.234 While attacks on the oilfields would further erode ISIS revenue, it would also destroy natural resources belonging to the Syrian people and possibly lead to another situation similar to the Gulf War.235 Based on these attacks it seems that the United States has a good argument for legal military action. Under the doctrine of mili­tary necessity, the airstrikes were the necessary amount of force used in order to eliminate specific oil refineries, which the government be­lieves will lead to the downfall of ISIS. Also, the United States took deliberate measures to minimize their environmental effect and avoided damage that could be considered widespread, long-term, and severe.

226. Id.
228. Id.
229. Id.
231. Id.
232. Id.
234. Id.
The attacks in Gaza at the end of last year took an enormous toll on the environment. Israeli and Hamas airstrikes turned mosques, factories, schools, hospitals, and thousands of houses into rubble. Approximately four million tons of rubble was left after the attacks, however, ill-equipped facilities in Gaza could only handle a fraction of that amount. Included in the destruction were several farming areas that produce crops for local consumption. These areas are now wastelands and could take some time to eventually clear. In addition, Israeli strikes damaged a central power plant causing water pumps, which distribute water for domestic use, to stop working. Finally, the destruction of Gaza’s main sewage treatment plant caused untreated sewage to be sent into the Mediterranean Sea each day.

Based on the extent of the damage in Gaza, the attacks would most likely violate the Additional Protocol I and ENMOD standard of widespread, long-lasting, and severe. The attacks have caused the death of thousands of civilians and displacement of millions more. Also, reconstruction will cost approximately $7.8 billion and take almost a decade to complete. Unfortunately, no individual or state has been held liable for the damage caused. If states were, at the very least, held economically liable for the attacks then the process to rebuild Gaza would take less time and be less costly.

V. Conclusion

International armed conflict creates several adverse effects that have the ability to impact various populations. One of the most costly effects is the destruction of the natural environment. Regardless of combatants’ intent when nations go to war, damage to the environment in one form or another is virtually inevitable. Due to this effect, the international community has established agreements to try and hold states liable for their actions. However, several of these agreements, including Additional Protocol I, ENMOD, and the Rome Statute have not been effective and have resulted in environmental harm.

237. Id.
239. Raghaven, supra note 236.
240. Id.
241. Id.
242. Id.
243. Haaretz, supra note 238.
244. See id.
going unpunished.  The biggest drawback between the agreements is how vague they are. Additional Protocol I, ENMOD, and the Rome Statute all prohibit attacks that cause “widespread, long-term, and severe damage” to the environment. Unfortunately, neither agreement takes care in specifically defining those terms. Furthermore, Additional Protocol I and ENMOD only apply to states that have signed and ratified the agreement. Both agreements are limited in this respect and leave several nations free to take advantage of the environment without fear of consequence.

The need for adequate international law becomes evident as technology develops. When the weapons of warfare become more advanced, combatants may be tempted to manipulate or attack the environment in new and more devastating ways. To prevent this, there are several ways international law should change to become more effective. Above all else, international agreements must be revised for clarification and become applicable to all states. In addition, the international community has favored taking proactive steps to deter environmental damage including the destruction of harmful weapons, establishing a fund to restore the environment, and utilizing an armed peacekeeping force. Aside from revising international law, there are also several recommendations that nations should address themselves. One option is to increase environmental awareness. The public should be kept conscious of harmful military actions and put pressure on governments to rethink those actions. Another option is to include environmental rules of law in military manuals. Regardless of what changes will actually be made to protect the environment during times of war, current conflict has shown that it is a growing problem that requires an immediate solution.

245. See supra Part IV.A-B.
246. See supra Part II.C.ii.
247. See supra Part III.
248. See supra Part IV.C.i.
249. See supra Part IV.C.ii.,iv-v.
250. See supra Part IV.C.iii.
251. See supra Part IV.C.iv.